

IDENTIFYING AND MEASURING THE SUCCESS OF CORPORATE REAL ESTATE MANAGEMENT

Anna-Liisa Lindholm

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<p>The added value of corporate real estate management (CREM) for the core business is not yet properly discussed and identified in spite of the recent recognition of CREM as a strategic support function of an occupier organisation. Little attention has been paid to the added value that CREM can generate from strategically supporting core business processes. The purpose of this study is to increase knowledge about the contribution of corporate real estate management to the core business by concentrating the success factors and performance measurement of CREM. The following primary research question is formed from the literature review: <i>How can the contribution and success of the corporate real estate management be identified and measured?</i></p> <p>This study is interpretative in nature and is lying on abductive logic. The methods for primary data collection are semi-structured interviews. Based on the results of the qualitative data analysis, the research constructs are sharpened and the hypothetical model for identifying and measuring the added value of corporate real estate management is created. The empirical testing of the theoretical model is done by conducting a constructive study, where the validation of the model is done by in-depth case research. At the end, after the validation of the model, the theoretical contribution, practical utility and recommendations for future research are presented.</p> <p>The general <i>model for identifying and measuring the value added by corporate real estate</i> is a novel construct that develops the relationship between corporate strategic management systems and real estate decisions and operations. This leads to means to identify and prove the contribution of real estate to the occupier organisation and the possibilities that exist for adding value. However, the model still needs to be tested and developed further. In this study, the tested measures were developed for measuring the CREM unit's ability to achieve their aims, but there is also a need to measures, which demonstrate the benefits of CREM for core business in economical figures.</p>			
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<p>Yrityksen kiinteistöjohtamisen (CREM) merkityksestä ja vaikutuksista kiinteistöjen käyttäjäorganisaation ydintoiminnalle on keskusteltu yhä enenevässä määrin viime vuosien aikana. Keskustelun aktiivisuudesta huolimatta empiirisiä tutkimuksia kiinteistöjohtamisen kokonaisvaikutuksista ja lisäarvosta organisaation ydintoiminnalle on vain rajoitetusti löydettävissä. Tämä tutkimus keskittyy kiinteistöjohtamisen lisäarvon organisaation ydintoiminnalle identifioimalla kiinteistöjohtamisen menestystekijöitä ja kuvaamalla kiinteistöjohtamisen suorituskyvyn mittaamista. Tutkimus vastaa seuraavaan tutkimuskysymykseen: <i>Miten kiinteistöjohtamisen vaikutusta organisaation ydintoiminnalle voidaan idenitfioida ja mitata?</i></p> <p>Tutkimus on luonteeltaan tulkitseva ja nojaa abduktiiviseen päättelyyn. Tutkimuksen empiirinen aineisto on koottu teemahaastatteluilla. Haastatteluaineiston laadullisen analyysin pohjalta on muodostettu teoreettinen malli kiinteistöjohtamisen lisäarvon identifioimisesta ja mittaamisesta. Mallin empiirinen testaus toteutettiin konstuktiivisena tapaustutkimuksena.</p> <p>Malli kiinteistöjohtamisen lisäarvon identifioimisesta ja mittaamisesta tarjoaa kokonaisvaltaisen lähestymistavan kiinteistöjohtamisen vaikutusten ja lisäarvon arviointiin ja tunnistamiseen sekä edesauttaa kiinteistöjohtamisen ja organisaation ydintoiminnan strategisten johtamismallien yhteyttä. Kehitetty malli tarjoaa keinoja osoittaa ja identifioida kiinteistöjohtamisen lisäarvoa organisaation ydintoiminnalle. Mallin empiirinen testaus osoitti, että malli on edelleen kehitymisvaiheessa: Jatkotutkimusta tarvitaan muun muassa kiinteistöjohtamisen kokonaisvaltaisten mittareiden kehittämisessä.</p>			
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One of the central themes of my dissertation study is the added value. Added value is a vague and ambiguous term, as it will be expressed in my thesis as well. The meaning of the added value depends on the perspective and the objective of the party, who is seeking the added value. For me, the added value of this dissertation process has been multifold including, for example, interesting discussions with my colleagues, joyful conference trips, mental growth, the great feeling when surpassing own expectations and the moment when the essence of the academic research brightened up for me. Also many persons have given added value for me with the valuable contribution for my thesis. I wish to thank all those who have supported me on my way to accomplishing my dissertation.

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In Espoo, April 17th, 2008
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LIST OF APPENDED PAPERS

This dissertation of Doctor of Science in Technology summaries the following publications.

Paper 1.

Lindholm, A-L., Kiinteistöjen käyttäjäorganisaatioiden kiinteistöjohtamisen strategioista (corporate real estate strategies), *Maanmittaus*, 2005, 1-2, 24-41.

Paper 2.

Lindholm, A-L, Gibler, K. M., Leväinen K. I., Modeling the value-adding attributes of real estate to the wealth maximization of the firm, *Journal of Real Estate Research*, 2006, 28:4, 445-475. *Due to the copyright reasons this article is not included in this publication.*

Paper 3.

Lindholm, A-L., Leväinen, K. I., A framework for identifying and measuring value added by corporate real estate, *Journal of Corporate Real Estate*, 2006 8:1, 38-46.

Paper 4.

Lindholm, A-L., Nenonen, S., A conceptual framework of CREM performance measurement tools, *Journal of Corporate Real Estate*, 2006, 8:3, 108-119.

Paper 5.

Lindholm, A-L., A constructive study on creating core business relevant CREM strategy and performance measures, *Facilities*, 2008 (in press, permission to publish 15.2.2008).

Contribution of the author to Papers 1 to 5 as follows:

Paper 1. The author of this dissertation is fully responsible for writing this paper.

Paper 2. The author of this dissertation is responsible for initiating this paper and had main responsibility in data collection and analysing. Writing the paper was done in cooperation with the co-authors.

Paper 3. The author of this dissertation is responsible for initiating this paper and had main responsibility in data collection and analysing. Writing the paper was done in cooperation with the co-author.

Paper 4. The author of this dissertation is responsible for initiating this paper and had main responsibility in data collection and writing the paper. The data analysis was done in cooperation with the co-author.

Paper 5. The author of this dissertation is fully responsible for writing this paper.

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1 INTRODUCTION

1.1 Background

Globalisation of business operations and other competitive pressures are driving business organisations to compete in an ever more competitive, rapidly changing and global environment. These external pressures and changes in the business environment and increasing demands for greater performance are forcing corporations to pay attention to non-core operations in addition to core businesses. Especially the demands to increase efficiency and effectiveness either economical or organisational perspective have driven businesses to concentrate also to their support resources, such as real estate and facilities management. The demand for more efficient utilisation of space and higher workplace productivity has led to businesses adopting a range of strategies for managing their facilities. The emergence of corporate real estate management (CREM) as a distinct discipline has supported this drive and the search for strategies aimed at enhancing the value of real estate assets and facility-related services to the core business.

In spite of the recent recognition of CREM as a strategic support function, the added value of CREM for the core business of an organisation is not yet properly discussed and identified. In many corporations, real estate management has evolved over the years from individual transaction based decisions about physical spaces. As such they tend to follow traditional approaches of cost minimization and focus on short-term results rather than long-term strategy, still not moving from taskmaster to business strategist (Joroff, *et al.*, 1993). Many real estate and facilities units within corporations have been established from the perspective of managing existing buildings. CREM decisions are, therefore, primarily based on functions and requirements in relation to the structures and not to the businesses that are performed within them. Little attention has been paid to the added value that CREM can generate from strategically supporting core business processes.

The traditional approach to manage properties and real estate places the buildings and service installations in the foreground and softer, qualitative, issues in the background. Realization that both tangible and intangible assets are important to the successful support of the core business calls for a broader view of real estate's contribution to the occupier organisation. To be successful in today's business environment management has to create a range of business environments, both physical and psychological, capturing knowledge and enhancing the creation of new knowledge and new results. Instead of the existing approaches to focus on operational elements, a living organisation needs to focus on the strategic values of the organisation. This not only requires a broad theoretical framework, but also new techniques and tools for measuring performance resulting from real estate decisions, rather than just relying on the traditional financial measures corporate real estate officers report using most often (Nourse, 1994; Bdeir, 2003). Furthermore, a broader, more coherent assessment of the ability of best practice CREM to add value to the core business has been missing.

Performance measurement is also a topic, which is often discussed (e.g. Nourse, 1994; Bon *et al.*, 1994; Duckworth, 1993; Amaratunga and Baldry, 2000; Lubieniecki and Desrocher, 2003) in the context of corporate real estate (CREM) and facilities management (FM); however, the mechanism of how this happens in corporate real estate management is quite unclear. Most corporate real estate management sources provide an oversight of common performance indicators, which usually represents the operational view of these disciplines. However, there is little literature available that covers the development of a systematic approach to performance measurement in corporate real estate management, one that embraces every aspect of corporate real estate management, namely strategic, tactical and operational and especially ties up CREM to the organisational strategic decision making.

Although several studies related to corporate real estate and facilities management have addressed the topic of managing real estate resources (e.g. Nourse and Roulac, 1993; Apgar, 1995; Krumm and Vries, 2003), still little research and literature is available on the benefits of the corporate real estate management from the core business of an occupier organisation perspective. The field has been lacking research that develops theoretical models of the relationship between corporate strategic management systems and real estate decisions and operations. The lack of unifying corporate real estate models means that the contribution of real estate to the occupier organisation and the possibilities that exist for adding value are often not recognized nor properly considered. A similar lack of attention is noticeable from the CREM performance measurement perspective. Studies on CREM measures mainly address the internal CREM measures. Attention to the role of performance measurement in order to obtain the alignment of the corporate real estate management and the core business processes has been missing. These gaps in literature and research have been the main motivators to conduct this study.

1.2 Research problem and objectives

This study concerns with a problem based in practice: it is challenging to demonstrate the contribution and success of corporate real estate management to the core business of an occupier organisation. First of all, it is not easy to create a general model of the CREM contribution, because all the organisations and their demands and needs for real estate management are unique. Second, how to measure functions and processes where outcomes are mostly intangible and most of the existing measures are more like indicators for operational tasks, not strategic performance measures, which could help the organisations to identify the corporate real estate contribution to the corporation wealth.

The purpose of this study is to increase knowledge about the contribution of corporate real estate management to the core business of an occupier organisation by concentrating the success factors and performance measurement of CREM. In this study, by following Hannula and Lönnqvist (2002), success factors are considered as key aspects where targets must be reached in order to succeed in business objectives and strategies. Success factors are the central element in identifying the CREM performance. Performance for one is seen as the ability of a measurement object's to achieve results. In this context performance should be understood more widely; in addition to actual achievements, factors affecting the ability to perform should also be considered. Performance measurement for one is a precisely defined

method that can be used to describe the performance of a specific success factor (Hannula and Lönnqvist, 2002).

The main focus of this study is on real estate strategic decisions, not so much on operational day-to-day tasks. This study assesses the factors important in promoting the value of corporate real estate management under the present business environment. The following primary research question is formed from the literature review and the researcher's pre-understanding of the research area:

RQ: How can the contribution and success of the corporate real estate management be identified and measured?

In order to be able to solve the research problem of the study the objectives are:

- to define the success of the corporate real estate management
- to identify the success factors of the corporate real estate management
- to study how to measure the success of the corporate real estate management.

In order to accomplish the objectives this study has divided into two phases:

Phase I: Create a model for identifying and measuring the success of corporate real estate management

Phase II: Validate the developed model in practise

As the focus of this dissertation is to increase knowledge of the contribution of corporate real estate management to the core business, the greater focus is aimed towards the development phase of the model (phase I). Phase II is conducted for increasing the reliability of the developed model.

This study contributes to the field by developing a model for identifying and measuring the contribution and success of corporate real estate management for the core business of an occupier organisation through a broader strategic management framework.

1.3 Research approach and methodology

As was explained in the last subchapter the study was divided into two phases (phase I: create a model, phase II: validate the model). These phases are very different from the research perspective, so it was seen that in order to conduct a sound research, there has to be different kinds of research approaches and methodologies under both phases. The research approach and methodology is explained in this subchapter according to these two phases.

1.3.1 Phase I: The approach and methodology for creating the model

In general there are four paradigms a researcher may consider in conducting an empirical research: positivist, interpretative, critical and pragmatic. Of these four, the two most

common are the positivist paradigm and the interpretative paradigm. Both approaches have their strengths and weaknesses. One of the strengths of positivism, as applied through large sample of statistical analyses, is its ability to identify generalised patterns of event regularities. Management research in the past and much today tends to emanate from a broadly positivist approach to the discernment of reality (Smallbone and Quinton, 2004). Then again, its primary weakness is the inability to generate a reliable causal explanation in an open social system. Following Klein and Myers (1999), the foundation assumption for interpretative research is that knowledge is gained, or at least filtered through social constructions such as language, consciousness, and shared meanings. In addition to the emphasis on the socially constructed nature of reality, interpretative research acknowledges the intimate relationship between the researcher and what is being explored, and the situational constraints shaping this process.

The actual choice of the research approach of a study depends, of course, on the nature of the research problem as well as on the objectives set for the study. The purpose of this study is to increase the general knowledge on the contribution of the corporate real estate management for the core business of an occupier organisation and to deepen the understanding of issues related to the CREM performance. As the focus lies increasing knowledge by understanding, the study is more close to interpretative than positivist in nature.

In terms of methodology, interpretative research does not predefine depended or independed variables, does not set out hypotheses, but aims to produce understanding of the social context of the phenomenon and the process whereby the phenomenon influences and is influenced by the social context (Walsham, 1995). Unlike positivist research, there is no accepted general model for communicating interpretative research. Similarly, few guidelines exist for conducting the inductive process central to interpretative research (Rowlands, 2005). Interpretative researchers attempt to understand phenomena through accessing the meanings assigned to them by the participants. In direct contrast to positivist studies, interpretative researchers reject the possibility of an "objective" or "factual" account of event and situations, seeking instead a relativistic, albeit shared (between researcher and the interviewee) understanding of phenomena. Generalisations from the setting to a population is not sough; rather, the intent is to understand the deeper structure of a phenomenon, which is believed can then be used to inform other settings. (Rowlands, 2005.)

Generally, a distinction is made between three kinds of reasoning: deduction, induction and abduction. Deductive reasoning focuses on extracting statements from general knowledge in order to test these statements on the basis of facts and its central to positivism. Contrary to this procedure, the inductive approach reasons through moving from a specific case or collection of observations to general law (e.g. Taylor et al. 2002). The third type of logic, the abductive logic lays more emphasis on empirical data and allows for more dynamic interaction between data and theory than the deductive or inductive methods. As Perry *et al.* (1998) state pure induction might prevent the researcher from benefiting from an existing theory, just as pure deduction might prevent the development of a new and useful theory. Moreover, it has to be noticed that the starting and ending points for the abductive logic can be found in theory or phenomenon or in both. Abductive logic concerns finding the best explanation of a surprising observation on the basis of incomplete data. When a new sub-discipline such as corporate real estate management begins, research methods need to aim

first providing inductive insights in order to develop a central body of generally accepted theory from which useful hypothesis can later be formulated (Manning and Roulac, 2001). However, pure inductivism is not seen as the suitable approach in this study, when there are some existing theories, which should have been taken into account. To be able to understand the corporate real estate management and its possibilities to add value to the core business in different kinds of business environments, the study has to rely on the collection of knowledge rules obtained from other disciplines. Abductive rather than inductive logic is seen more appropriate in forming the foundation of the reasoning of this study.

In this study the abductive approach starts with some pre-perceptions and theoretical knowledge (point 0 in Figure 1) of corporate real estate management in its possibilities to contribute to the corporate performance. Then moving towards a real-life observation (point 1 in Figure 1). For conducting interpretative research, which is lying on abductive logic, the most suitable path in real-life observation is to rely on qualitative data over the quantitative data. Good qualitative data are more likely to lead to serendipitous findings and to new integrations: they help researchers to get beyond initial conceptions and to generate conceptual frameworks (Miles and Hubermann, 1994). The qualitative data for this study is collected mainly through theme interviews. Interviews are a flexible and adaptable way of finding things out. Face-to-face interviews offer the possibility of modifying one's line of enquiry, following up interesting responses and investigating underlying motives in a way that postal and other self-administered questionnaire cannot (Robson, 1993). However, according to Dubois and Gadde (2002) even if the prior theories are given, abductive reasoning starts at the point where an observation in the empirical research does not match these prior theories. Therefore, a creative iterative process (Taylor *et al.* 2002) of "theory matching" (point 2 in Figure 1) or "systematic combining" starts (Dubois and Gadde, 2002). In this study the "theory matching" means combining the interview findings and existing theories in an iterative process leading to the deviating observations. At the end resulting in a new matching framework or extending the theory used prior to these observations (point 3 in Figure 1).

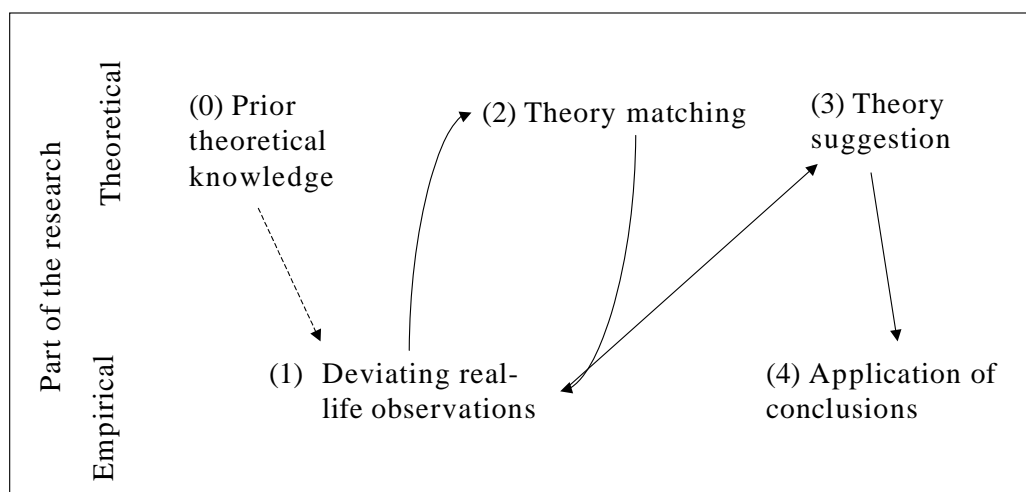


Figure 1. The abductive research process (Kovacs and Spens, 2005, p. 139)

The actual empirical data collection procedures and the steps for creating the model are explained in more detail in Chapter 3.

1.3.2 Phase II: The approach and methodology for validating the model

As illustrated in Figure 1, the abductive approach ends at the application of conclusions (point 4 in Figure 1). In this research, the application of conclusions is advanced further by validating (testing) the developed a model in real-life setting and then assessing the applicability of the model.

For testing of the model created through interviews, a constructive research approach (Kasanen *et al.*, 1991, 1993; Lukka and Tuomela, 1998; Lukka, 2000) was chosen to be most suitable. The constructive approach means problem solving in a real-life organisational setting through the construction of a management system. A constructive method is a solution-oriented normative method where the target-oriented and the innovative step-by-step development of a solution are combined, and which empirical testing of the solution is done and utility areas are analysed (Kasanen *et al.*, 1991). The constructive research approach could be defined as a research procedure for producing novel constructs –such as models, diagrams and plans –that solve the emerging problems in a running business organisation (Kasanen *et al.*, 1993)

The constructive research approach relies on a pragmatic notion of truth, i.e. ‘what works is true’, and the intervening role of the researcher is characteristic of the research process. (Lukka, 2000). It was seen that the validation (testing) of the model could be done by conducting a constructive study, where the general model is tested by implementing it in the case organisation. If the model passes the criteria of the constructive research approach, the validation of the model is successful. It should also be borne in mind that the implementation test has a twofold purpose: a successful implementation means both that the research process has been successful, and that the construct is technically feasible (Lukka 2000).

Constructive research approach (CRA) was originally developed in the field of management accounting in the 1980’s in order to assist management accounting academics in taking more active role in improving the existing practices and gaining deeper understanding of the actual practices of the organisations. A similar research approach, case study research strategy, is more commonly applied in the property related research fields (e.g. Walters 1999). However, in case studies the focus is often on gaining deeper understanding of the subject under the study and sharing this knowledge with others, whilst in the CRA the main focus is on improving the existing practices.

In this study the process for conducting a constructive study was applied to test the validity of the model developed by following the abductive research approach. The model is tested by using it for clarifying the real estate strategy of the case organisation and for developing appropriate performance measures to match to their strategy. Furthermore, the scope of the applicability of the model is examined and the theoretical connection and the research contribution are shown. The main focus of this research phase is to concentrate on the implementing of the model, examining the applicability of the model and showing the theoretical connection and the research contribution (steps 4 to 7 in the constructive research approach).

The steps and criteria of the constructive research approach, as well as the actual testing of the developed model are explained in a more detailed manner in Chapter 4.

1.3.3 Progress of the study

For describing the progress of the whole study, including both phases (phase I: creating the model, phase II: validating the model) Figure 2 is presented. Figure 2 outlines the two main phases of the research strategy of this study by illustrating how the main emphasis as a research perspective is focused on the phase I, whilst minor focus is given to the phase II. At the same Figure 2 illustrates the inference making and the abductive logic of this study. It shows how the theory, empirical data collection and analysis are in the dynamic interaction and contributes to the research issue.

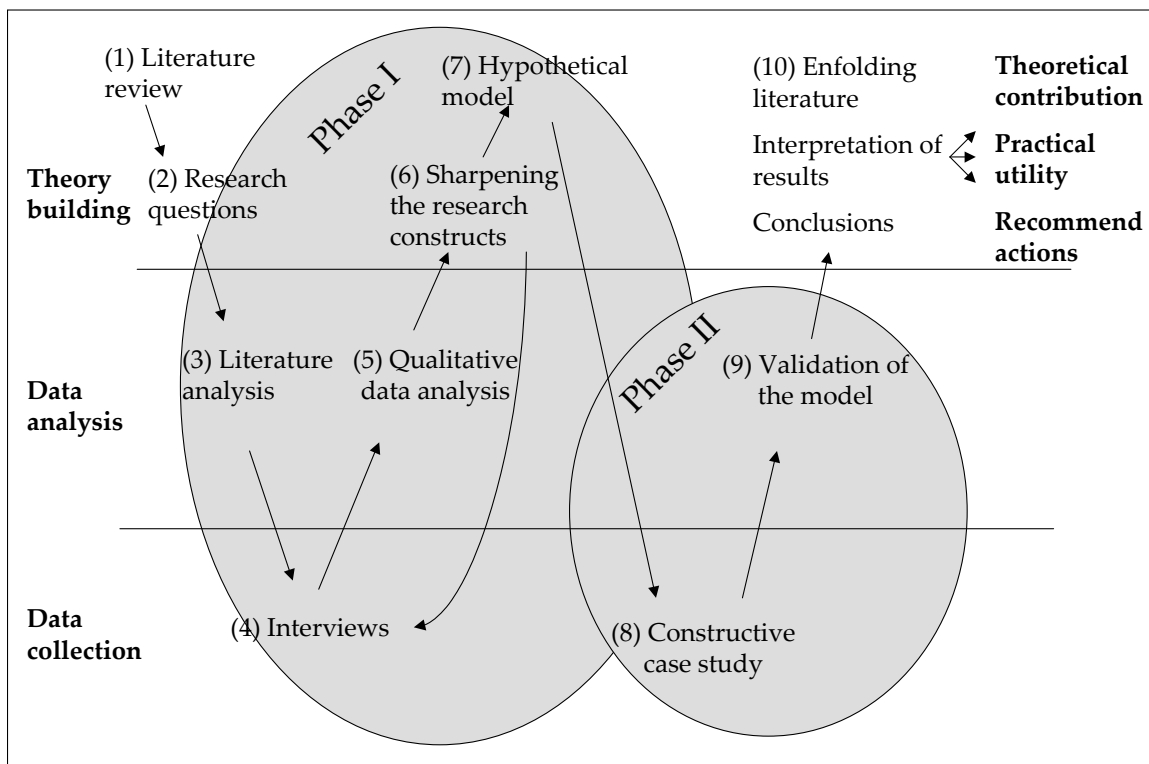


Figure 2. The research process of this study

The first step of this study, which is mostly theoretical, is to form relevant (point 1 in Figure 2) doctrine for this study. Doctrine is a concept that refers to the accumulated knowledge in each research field that has been gained from earlier research (see Olkkonen, 1993). Forming the doctrine included an in-depth examination of the material relating corporate real estate and facilities management and performance measurement in general and performance measurement in corporate real estate and facilities management in particular. The main purpose and outcome of this phase was to identify theoretical gaps in the literature, which pointed to potential research topics and (point 2 in Figure 2) questions. The next step was (point 3 in Figure 2) literature analysis concerning especially the theme around the research question. It was also carried out in order to cope with the currently confusing use of concepts

and definitions in the literature and practice. The first empirical part of this study forms from (point 4 in Figure 2) theme interviews. Based on the results of the qualitative data analysis, (point 5 in Figure 2) the research constructs are sharpened and (point 6 in Figure 2) compared with the existing theories for identifying the deviations, which are used for finding the best explanation in an attempt to model a new framework (point 7 in Figure 2). The empirical testing of the theoretical model is done by conducting (point 8) a constructive study, where the validation of the model is done by in-depth case study. At the end, after (point 9 in Figure 2) the validation of the model, (10 in Figure 2) the theoretical contribution, practical utility and recommendations are presented.

1.4 Structure of the dissertation

This dissertation consists of a binding story (summary) and five individual studies (papers). These five individual papers are scientifically accepted and published articles. Each of these five articles contributes to the objectives of this study. The results of these articles together answer to the research question and fulfil the objectives of this dissertation. Figure 3 illustrates the connections of each article to the objectives and research question of this dissertation. Figure 3 also illustrates how the articles and the two phases of this research are connected.

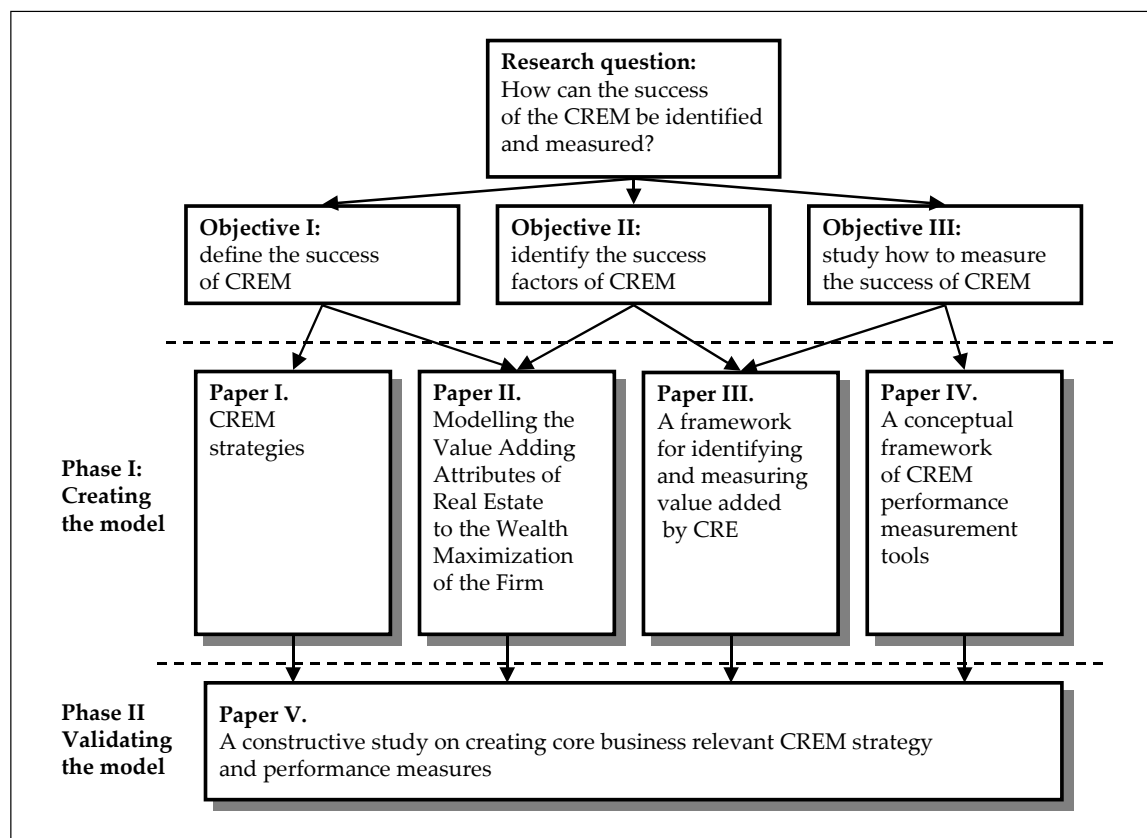


Figure 3. The network and the connection of the research question, the objective, the papers and the research phases

Each of the five articles has their own research problems and methodologies applied in order to solve the problem. However, the research data for all of these five papers was collected

with two methods described in the previous subchapters: through theme interviews (phase 1) and a constructive case study (phase 2). The results of the theme interviews are presented in the papers 1, 2, 3 and 4 so that each of the papers presents the results of one theme of the interview. The results of the constructive case study are presented in the paper 5. The data collection methods, analysis methods and the main outcomes of the individual papers are explained more deeply in Chapter 3.

The binding story of this dissertation (summary) forms through 5 chapters. In the first chapter of the summary, an introduction to the research problem area is presented. The chapter presents the research problem, aim and objectives, research methodology and the outline of the dissertation. Chapter 2 is a literature review. In this chapter, an overview of corporate real estate management, performance measurement and performance measurement in the context of corporate real estate management is given. In addition, relevant theories and concepts connected with the research problem are studied and their applicability to the answering to the research questions are discussed. Chapter 3 presents the empirical studies conducted during the phase I of this research. Furthermore, this chapter shows how the binding story links together the papers 1, 2, 3 and 4 and the research questions. Following chapter (Chapter 4) reviews the results of the phase II: validating the model and presents the results of the paper 5. Chapter 5 presents the contribution of the dissertation. The managerial implications, validity, reliability, and relevance of the dissertation are discussed in this chapter. In addition, this chapter outlines the limitations of the study and indicates some directions for future research.

2 THEORETICAL BACKGROUND

2.1 Scope and objectives of CREM

The main theme of this study is corporate real estate management (CREM). De Jonge (1996 in Krumm, 1999) defines CREM as the management of corporate accommodation in order to obtain maximum added value for the business. Krumm *et al.* (2000) complete this definition by describing that CREM is "the management of a corporation's real estate portfolio by aligning the portfolio and services to the needs of the core business (processes), in order to obtain maximum added value for the businesses and to contribute to the overall performance of the corporation". Also Nourse (1990) highlights the importance of the core business by describing CREM as the collection of activities related to acquisition, management, and disposal of real estate to achieve user objectives. Instead of focusing on maximizing wealth in real estate investments, the corporate real estate manager's opportunities to maximize the return on investment is controlled by and must conform to the business of the corporation (Nourse 1990). Bon (1992) adds the public organisation's real estate management into definition of the CREM by stating that CREM is seen as the management of buildings and parcels of land at the disposal of private and public organisations that are not primarily in real estate business.

Often the concept of real estate management is viewed from three aspects, which at the same time represent the different sectors (functions) of real estate management. These aspects are: physical, economical and organisational (Bon 1994, Lopes 1997). Brown *et al.* (1993) name these aspects as asset management (economical viewpoint), property management (physical viewpoint) and facility management (organisational viewpoint). In general, corporate real estate management then consists of all of these three aspects.

Based on these definitions above, it could be stated that CREM concerns every real estate and facilities related issue in public and private organisation, whose core business is not in real estate business. Of course, CREM can exist in the organisations focusing real estate business, but the CREM decision must then be assessed based on supporting the core business, not real estate business perspective. The content and tasks of CREM varies from organisation to organisation, but common for all is the aim of supporting the core business. The first objective of this study was to define the success of corporate real estate management. Based on the previously presented definitions, the success of CREM should be though, as the CREM ability to create added value for the businesses and to contribute to the overall performance of the corporation.

For obtaining maximum added value for the businesses and to contribute to the overall performance of the corporation, as the definitions of CREM insist, the needs and aims of the core business has to be clear. Following model is proposed to visually capture how corporate real estate can add value to the occupier organisation in the modern business environment (Figure 4). Over the past two decades the ideology of shareholder value has become entrenched as a principle of corporate governance (Lazonick and O'Sullivan, 2000; Nappi-Choulet, 2002). According to shareholder value theory, value to the firm is created by

maximizing the wealth of the shareholders. Thus, it could be stated that the corporations' primary aim is to add to the wealth of the shareholders. A business strategy for achieving this goal is developed based on the firm's vision. The firm must develop strategies for the functional areas such as human resources, information technology, finance, and real estate that follow from and support the general business strategy. Within the corporate real estate area, strategies are implemented through asset management (AM), property management (PM), and facilities management (FM). Staff makes operating decisions in each of these areas that can directly and indirectly affect the core business and the value of the firm, and thereby shareholder wealth. A key to this model are linking real estate strategies to overall business strategy, identifying how real estate decisions directly and indirectly affect the firm's financial success, and measuring those impacts on the firm.

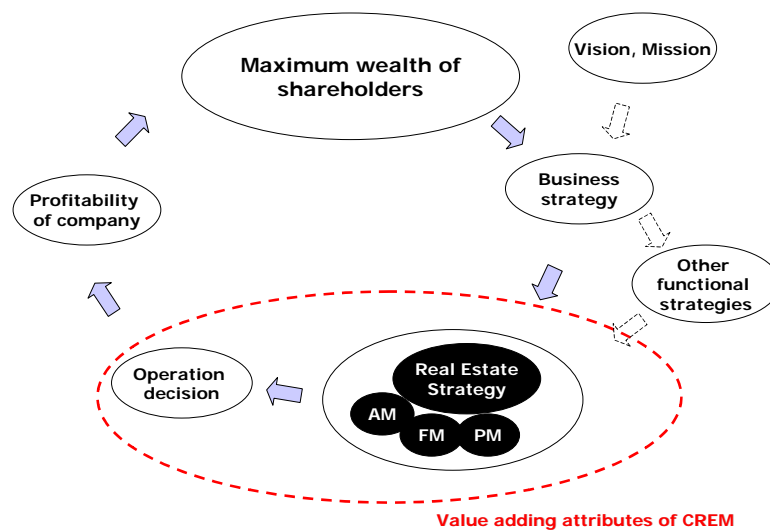


Figure 4. CREM as a part of the corporations' strategic framework (Lindholm et al. 2006)

Krumm (1999) has stated that although the issue of managing a corporation's real estate portfolio is not new, the perspective of CREM is different from traditional approach. Corporate real estate management was originally focused on meeting the continuous need for accommodation. Nowadays the prime focus is on outsourcing services and reducing the impact of real estate on the corporate balance sheet. The nature of the added value has changed toward providing functional leadership and cost-effective services for businesses. To meet the biggest challenges today, businesses need efficient, innovative and productive work environments with flexibility for expansion and contraction in response to the market (Gibler et al., 2002). In line with the increasing demands from the core business, the property and facilities management have begun to shift their focus proving their worth to organisation by saving them money, to asserting that CRE actually adds value to organisations. There is a shift from perceiving CRE as a purely tangible asset to one which may also provide benefit as an intangible asset. As an intangible asset CRE combines with people, processes, technologies and other assets to enable the organisation fulfil its purpose.

2.2 The nature of the added value in the context of CREM

According to the definitions of CREM presented in the previous subchapter, the success of corporate real estate management could refer to the CREM ability to create added value for the core business. But what does the added value actually mean? The phrase added value is nowadays commonly used, but it is also understood in various ways. This subchapter concentrates on discussing how the term “added value” is understood in the context of corporate real estate management and how the previous studies have covered the added value issues.

The corporate real estate literature does not give unambiguous answers to the question of how the added value could be created or how to define the added value of CREM, although there are a few researches done directly or indirectly around the topic of the added value of CREM. The previous literature could be categorized into two classes:

- Literature presenting different ways or channels for creating the added value for the core business
- literature presenting means or practices for enhancing the CREM contribution for the core business.

Literature presenting different ways or channels for creating the added value for the core business could be stated to begin as early as in the beginning of 1980's in the USA. Zeckhauser and Silverman (1983) were one of the first researchers who brought out the huge economical influence real estate assets might have to companies. However, their study did not report a success story. On the contrary their study clearly indicated that at least the American corporate managers were regularly neglecting their firm's real estate assets. They suggested that by neglecting their CRE assets, which were at that time from 25% to 40% of the total assets of the major American firms at market values, the corporations were left open to takeovers, lost profits and lower stock price performance. This, of course, meant that many corporations were still not fully using the value creation opportunities associated with their real estate holdings.

In 1989, Gale and Case (1989) studied the state of CRE management practices. They found out that while the dominant view of real estate continued to be as a production factor within the sample of corporations, there had been significant growth of CREM units during the 1980's in the US, which had been accompanied by increased influence and more active real estate resource management. Nevertheless, Gale and Case also concluded that the dominant view of CRE resources as a cost factor of production was only slowly shifting, and very few corporations saw at that time CRE resources as a profit unit.

Nourse and Roulac (1993) come to the conclusion that all too often the dominant emphasis tends to be on the financial goal of cost minimization. Thus, they see that corporations should be able to consider their CRE strategies from a wider perspective than just cost minimization. According to Nourse and Roulac, to effectively support a range of corporate objectives, multiple, rather than single real estate strategies may be required. They list eight types of real property strategies that encompass how a company's property decisions can be guided (Table 1). The first seven strategies encompass common corporate real estate decisions regarding site selection, facility design, and leasing, but place them in a strategic

context within the broader aims of the firm. Some encompass the traditional goals of reducing occupancy costs and facilitating production, operations, and service delivery. However, Nourse and Roulac also separate facilitating knowledge work from other operations, include flexibility as a real estate strategy, and identify that real estate strategies can be integrated with other functional strategies, such as human resources and marketing.

Table 1. Alternative Real Estate Strategies (Nourse and Roulac, 1993, p. 480)

1. Occupancy cost minimisation
- Explicit lowest-cost provider strategy
- Signal to critical constituencies of cost-consciousness
2. Flexibility
- Accommodate changing organisational space requirements
- Manage variability/risk associated with dramatic escalation/compression space needs
- Favor facilities that can readily be adapted to multiple uses by corporation and others
3. Promote Human Resource objectives
- Provide efficient environment to enhance productivity
- Recognize that environments are important elements of job satisfaction and therefore compensation
- Seek locations convenient to employees with preferred amenities
4. Promote marketing message
- Symbolic statement of substance or some other value
- Form of physical institutional advertising
- Control environment of interaction with company's product/service offering
5. Promote sales and selling process
- High traffic location to attract customers
- Attractive environment to support/enhance sale
6. Facilitate and control production, operations, service delivery
- Seek/design facilities that facilitate making company products/delivering company services
- Favor locations and arrangements that are convenient to customers
- Select locations and layouts that are convenient to suppliers
7. Facilitate managerial process and knowledge work
- Emphasize knowledge work setting over traditional industrial paradigm
- recognize changing character, tools used in, and location of work
8. Capture the real estate value creation of business
- Real estate impacts resulting from demand created by customers
- Real estate impacts resulting from demand created by employees
- Real estate impacts resulting from demand created by suppliers

Two years after Nourse and Roulac (1993) Apgar's (1995) research came out discussing how by managing real estate as a business function, the costs can be cut at the same time increasing productivity. According to Apgar (1995) firms are managing real estate with a dual purpose. To reduce costs, they pursue the "three Ls" of corporate real estate: consolidating locations, simplifying layouts and renegotiating leases. Based on Apgar firms are also using real estate as a lever to improve their competitive position. He states that a careful approach to real estate management is essential for three reasons: Real estate is complex, counterintuitive and emotional.

Deng and Gyourko (1999 in Krumm and Vries, 2003) have shown a consistent negative relation between the firm return and the degree of real estate ownership. Although the

return on real estate is generally lower than the return on the core business, real estate may provide other forms of added value, like efficiency and effectiveness of the activities in the corporation. Within the given industry a firm's return is lower if it has a relative high fraction of its total assets in real estate. Krumm and Vries (2003) state that real estate can impact on corporate performance by cost reductions or by improving revenues. First they studied direct financial impact of real estate in which cost and valuation come together: a pure financial relation based on generally accepted accounting principles. A second kind of impact they studied is the indirect influence of real estate, which is realised through supporting other business activities to operate in an effective and efficient manner. According to them the required nature of added value of CRE transformed from a mainly technical or real estate finance perspective to a corporate finance perspective. In their debate they state that the direct added value of professional real estate management is consequently often considered to be of no value. The indirect effects of real estate are however hard to quantify and therefore often not taken into account.

In an effort to pinpoint the added value of real estate, de Jonge described seven elements of added value (Table 2) contributing to the transformation of real estate from mere “cost of doing business” to a true corporate asset (Krumm, 1999). De Jonge also identified cost reduction, flexibility, and the relationship between real estate and marketing as the ways real estate can add value to the firm. His list differs from that of Nourse and Roulac (1993) by reformulating facilitating operations to increasing productivity, more clearly identifying increasing value as a strategy, highlighting changing culture by introducing workplace innovations, and grouping a range of real estate decisions under the heading of risk control.

Table 2. Elements of Added Value of Real Estate (de Jonge, 1996 in Krumm, 1999, p. 66)

1. Increasing productivity	<ul style="list-style-type: none"> - Offering adequate accommodation - Site selection - Introducing alternative workplaces - Reducing absence of leave
2. Cost reduction	<ul style="list-style-type: none"> - Creating insight into cost structure - More efficient use of workplaces - Controlling costs of financing
3. Risk control	<ul style="list-style-type: none"> - Retaining a flexible real estate portfolio - Selecting suitable locations - Controlling the value development of the real estate portfolio - Controlling process risk during (re)construction - Controlling environmental aspects and labour conditions
4. Increase of value	<ul style="list-style-type: none"> - Timely purchase and sale of real estate - Redevelopment of obsolete properties - Knowledge of and insight into real estate market
5. Increase of flexibility	<ul style="list-style-type: none"> - Organisational measures (working hours, occupancy rates) - Legal/financial measures (mix own/rent/lease)
6. Changing the culture	<ul style="list-style-type: none"> - Introducing workplace innovations
7. PR and marketing	<ul style="list-style-type: none"> - Selection of branch locations - Image of buildings - Governing corporate identity

In 2000, Gibson (2000) wrote that CRE managers could gain more insight into the problem of how to manage real estate by recognizing that real estate should be considered from several perspectives: as a physical, functional and financial asset. Each of these perspectives leads to a different source of flexibility, which can all help the corporation to improve its “bottom line” figures. Gibson (2000) suggested that a CRE portfolio should be divided into at least three sub-portfolios to be able to maximize the flexibility from all angles. These portfolios would be so called core and peripheral portfolios determined based on the time span of the properties whether the properties are needed for long-term or short-term. The concept of core and peripheral labour has been used before in human resource management. However, it might be very difficult to determine which properties are core and which are not, because of the difficulty to predict the future business environment. Thus, as Gibson (2000) also Roulac (2001) emphasizes that CRE is a multidimensional asset that can add to corporate profitability and shareholder value in many ways.

In line with Gibson (2000) several authors (Gibler *et al.*, 2002; Gibson and Lizieri, 1999; Gibson and Louargand, 2001) have stated that to meet their biggest challenges in today's fast-paced competitive business environment, firms need flexible, efficient, innovative and productive work environments. Gibson (2000) and Blakstad (2001) considered the physical, functional and financial aspects of property as sources of flexibility. From the physical perspective, flexibility is articulated in terms of building design, including usable areas, modular floor plates and the ability to change the internal configuration of space (Harris, 1996). Functional flexibility is about the organisation's use of space and the space's functional possibilities, such as if the space is multifunctional and able to accommodate changes. The main issues related to the organisation's use of space include alternative workplace solutions (hot-desking, shared workspaces, free address areas, team space, etc.), varying density, operating hours, and flexible working locations (Becker and Steel, 1995; Blakstad, 2001). Financial flexibility is related to the financial situation and arrangements of owners and users of the property and in the real estate market in general (Blakstad, 2001). It is influenced by the tenure of the occupier, lease terms, and the level of services offered by the property provider (Gibson, 2000).

In the 21st century workplace issues have risen as an important element of CREM. In today's competitive business environment the employers must provide appropriately designed workspaces in locations that attract and retain the best knowledge workers and allow them to do their best work in an efficient manner. The physical workplace is the third most important factor (after compensation and benefits) in the decision to accept or leave a job; 41 percent of those surveyed in the U.S. said it would influence their decision to take a position (ASID, 1999). Research conducted by the Buffalo Organisation for Social and Technological Innovation (BOSTI) demonstrates that the physical environment for office work can measurably affect job performance, satisfaction, and the ease and quality of communication and suggests that supportive design has positive effects on work and workers. The economic benefit of properly planning and designing office space can equal 2 to 5 percent of each worker's salary annually, and could be higher (up to 15 percent) if the office was planned and designed to be a "perfect fit" for the work (Brill, 1984).

Besides the workplace issues, location issues are highlighted as well. Retailers, hotels, and industrial firms have long recognized that site selection is an essential component of

financial success (See Craig *et al.*, 1984; Kimes and Fitzsimmons, 1990; and Singhvi, 1987, for example.). Service providers can also trace financial success to proper site selection (Becker *et al.*, 1997). Office occupiers can gain value by using buildings to create or reinforce a corporate image, using them as symbols to reflect their values and culture (Capowski, 1993).

One of the first researchers amongst the literature concentrating on presenting the means or practices for enhancing the CREM contribution for the core business was Pittman and Parker (1989). They studied the performance of the CRE departments with a survey, which revealed that the CRE executives consider communications and working relationships with the management and operating divisions to be particularly important to a top-performing real estate department. Further, their results indicated that centralised real estate and a senior reporting level are significant factors in determining how well the respondents' corporations are perceived to match importance with performance.

Rutherford and Stone (1989) showed that centralised real estate department usually concentrates on cost-control and thus does not see real estate as a business of its own, which might lead to the corporation missing possibilities for income generation in its real estate business. On the contrary, Rutherford and Stone (1989) indicated that by turning a CRE department into "a profit unit" from "a cost unit", the CRE utilisation should become more efficient, as the real estate unit would seek continuously money making opportunities. Inefficient real estate asset management, on the other hand, might obviously lead to the corporation's real estate portfolio not going valued to its correct value by the investors, and hence the corporation itself would be undervalued by the markets. Nevertheless, as Pittman and Parker (1989) indicated, it is clear that a senior reporting level is necessary for a CRE unit or otherwise it might be difficult for the CRE people to react proactively to the possible changes in the corporation's core business.

Also Miles *et al.*, (1989) noticed that many corporations have the opportunity of increasing their profitability through more effective management of their real estate. According to Miles *et al.* (1989), this entails evaluating real estate on an on-going basis using an approach that treats the interactions of real estate with the capital structure, debt capacity, cost of capital and the overall operations of the firm. Miles *et al.* (1989) summarized that it is very important for corporations to view real estate as an asset that can and should be actively managed to achieve corporate goals.

Nourse and Roulac (1993) wrote on real estate strategies and CRE decisions. They point out that the corporation's real estate decisions are effective if they support the corporation's overall business objectives. This obviously supports the findings of e.g. Pittman and Parker (1989) who wrote that it is extremely important to have close contacts between the corporation's senior management and the CRE executives. By producing real estate strategic plans that address the business units' objectives (efficiency, customer satisfaction, productivity, etc.), corporate real estate executives can best demonstrate their value and provide a platform for being involved in the broader corporate planning process (Lambert *et al.*, 1995). This will help corporate real estate executives overcome the problems associated with being excluded from the strategic planning process cited in the previous research (Carn *et al.*, 1999; Gibler *et al.*, 2002; Pittman and Parker, 1989; Schaefer, 1999; Teoh, 1993; Veale, 1989).

Singer *et al.* (2007) investigated in a case study how 10 organisations are using corporate real estate strategy to support their organisation competitive strategy. Their case study findings show that most of the organisations, seven out of ten, use a standardisation real estate strategy. The organisations using this strategy have a clear vision of the corporate image they want to create with their buildings. Furthermore, they want to perform efficiently. The research results show that a standardisation real estate strategy is capable of supporting all three competitive strategies, respectively: lowest costs, differentiation, and focus.

A publication by Joroff *et al.* (1993) was one of the first that reported the strategic value of corporate real estate in the set of corporations' other resources -capital, people, technology and information. They showed the evolution of corporate real estate from the taskmaster through the controller, dealmaker and entrepreneur to the business strategist, who anticipates business trends, monitors and measures their impacts; contributes to the value of the corporation as a whole by focusing on the company's mission rather than focusing only on the real estate. In this evolution stage strategic responsibility requires the CRE unit to look beyond the real estate market to the capital market. By adapting this thinking, they suggest that products of this approach will tend to be more innovative since they are responding to internal wants and market constraints at the same time. CREM units have to justify their occupancy at market rents on an economic basis in order to become the business units real estate decision strategic decisions. This gives the opportunity to the business units to add value to the parent by rethinking their needs.

In 1994, Nourse (1994) studied CRE performance with a cross-case comparison of eleven firms. He analysed how real estate performance was measured and monitored for managerial feedback to make CRE decisions that will cause real estate performance to support overall strategic goals. Nourse (1994) found out that CRE performance was more regularly monitored by firms leasing property than by those owning property. Nourse (1994) suggested that firms that have good real estate information systems usually also have tighter linkage between corporate strategy and real estate operations. This also supported the findings of e.g. Veale (1989) who emphasized the significance of CRE information systems. Also Gibler *et al.* (2002) highlight the importance of information systems by stating that proper managing of the company's portfolio must start with an inventory and valuation of current facilities. Many firms still lack accurate property information and accounting systems (Gibler *et al.*, 2002).

Manning and Roulac (1996) aimed at reviewing the tasks a CRE function should undertake to create more opportunities for the company's real estate department to increase shareholder wealth. Manning and Roulac (1996) concluded that this could be best done by organising and managing the CRE function centrally, plus training a significant proportion of the CRE staff to work closely with the operating business units, their support staffs and local business unit issues.

2.3 CREM Performance measurement

2.3.1 Performance measurement in general

To determine whether a firm is achieving its strategic goals, as well as to evaluate, control and improve organisational processes, an organisation needs to compute relevant performance measures that should derive from the firm's strategy (Ghalayini and Noble 1996; Keegan *et al.* 1989). Performance measurement is the process whereby the strategy of an organisation is translated into concrete objectives and the achievement of those objectives is evaluated. Performance measurement focuses on communicating the objectives to employees; guiding and focusing the employees' efforts towards achieving these objectives; controlling whether or not the strategic objectives are reached; using double-loop learning to challenge validity of the strategy itself, and visualising how the efforts of individual employees contribute to the overall business objectives (see e.g. Neely, 1998; Simons, 2000; Kaplan & Norton, 1996).

Neely *et al.* (1995) describe performance measurement as the process of quantifying action, where measurement is the process of quantification and action correlates with performance. They further propose that performance should be defined as the efficiency and effectiveness of action. A performance measure is a precisely defined method that can be used to describe the performance of a specific success factor (Hannula and Lönnqvist, 2002). Performance measurement system (PMS) is then the set of strategically important performance measures.

Performance measures are the means for determining the status of a success factor. A single success factor can be assessed using multiple measures. Terms such as indicators (key performance indicators, KPIs), metric and measurements are often used as synonyms for the term measure. However, Ho *et al.* (2000) state that there is an essential difference between these terms. According to them, the major difference between measurements and indicators is that the former are direct representation of the scale of the organisation (internal), whereas the latter are figures that are comparable between organisations (external). Performance measurements are direct measurable items, such as total expenses or real estate particulars, such as occupancy costs, gross floor area, etc., and performance indicators are data obtained by measuring expenses of real estate particulars against certain metrics, such as occupancy cost per employee, occupancy cost per square feet, ratio of gross floor area, etc.

2.3.2 Performance measurement in the context of CREM

Monitoring company performance has traditionally been associated with accounting, and the purpose has been to determine a company's financial success. Success has been judged via comparison to the previous years' results and various key indicators, such as return on investment, turnover and net profit. This has also been the case in the context of corporate real estate management (CREM). Historically, corporate real estate managers have tended to measure performance from an operational efficiency perspective –factors such as operating costs, costs per square foot and maintenance cost (Arthur Anderson & Co., 1993; Duckworth, 1993; Nourse, 1994; Bdeir, 2003).

A control system concentrating only on such indicators has shortcomings. Short-term goals lead to short-term actions, and a consequence of striving for short-term profits is cutbacks on activities that could lead to long-term profitability (Laitinen, 1998; Olve *et al.*, 1999). In addition, the financial data do not illuminate the potential of using real estate to create a competitive advantage for the business. Whilst these conventional measurements allow the corporate real estate managers to assess outlay against budget, and even to compare this with the industry norm, they do not make clear whether the organisation is spending the right amount for its needs, or whether it is maximizing its results (Hinks 2004).

In the context of CREM, performance could be seen as the ability of CREM to support the organisational objectives, strategies and at the end: business success. To determine whether CREM is achieving its strategic goals, relevant performance measures are needed to compute. In order to demonstrate how CREM contributes to the core business of the organisation, these performance measures should derive from the firm's strategy and the organisational success factors (Ghalayini and Noble 1996; Keegan *et al.*, 1989). Strategic performance measurement is then the process whereby the strategy of an organisation is translated into concrete objectives and the achievement of those objectives is evaluated. However, the choice of strategy for reaching the vision of the firm is likely to be closely tied to the nature of the organisation. Every organisation is individual in respect to the strategies for implementing its ultimate goals. This creates a challenge for identifying the generic added value of CREM as performance is very difficult to measure across a range of differently structured and focused organisations. Consequently, there is not one right CREM measure or even a method, which suit to all organisations.

CREM performance measurement is also complex because many real estate decisions have an indirect and lagged effect on the firm's financial success that is going unmeasured. Financial performance is correlated with creation of value and delivery of quality products and services (Heskett *et al.*, 1997). These, in turn, are related to employee morale, productivity and both employee and customer satisfaction. Employee morale, productivity, and satisfaction are partially a function of the workplace environment, which is determined by corporate real estate decisions. Customer satisfaction is partially a function of convenient and functional product and service delivery locations. Although researchers may have difficulty in developing reliable measures of such important factors as employee productivity (Kaplan and Aronoff, 1996), the importance of measuring the lagged effect of decisions affecting these conditions is evident.

Literature on corporate real estate performance measurement can be characterized into two categories. Research either presents the results of surveys of frequently used performance measures in different kinds of organisations (Arthur Anderssen, 1993, Nourse, 1994; Bon *et al.*, 1994; Massheder and Finch 1998; Bdeir, 2003) or suggests specific performance measures for consideration and/or recommends qualities that the measure should possess (Duckworth, 1993; Kincaid 1994; Tranfield and Akhlaghi, 1995; Varcoe, 1996; Hinks and McNay, 1999; Amaratunga and Baldry, 2000; Ho *et al.*, 2000; Lubieniecki and Desrocher, 2003).

A review of the most commonly used measures reveals that organisations have utilized five different types of performance measures: 1) cost, 2) space efficiency, 3) satisfaction, 4) CRE unit efficiency and 5) portfolio efficiency. The first two are the most common types of

measures. Table 3 summarizes the most commonly used corporate real estate performance measures identified in the previous research.

Table 3. The most commonly used corporate real estate management performance measures found in the literature

Cost	Occupancy cost per square foot (Arthur Andersen, 1993; Nourse 1994; Bon <i>et al.</i> . 1994; Massheder and Finch, 1998; Bdeir 2003) Occupancy cost per customer (Bon <i>et al.</i> ., 1994) Occupancy cost per employee (Arthur Andersen, 1993; Massheder and Finch, 1998; Bdeir, 2003) Occupancy cost per dollar or per unit of revenue (Nourse, 1994) Occupancy cost per seat (Bdeir, 2003) Occupancy cost as a % of total operating expense (Arthur Andersen, 1993; Bdeir, 2003) Occupancy cost as a % of operating revenue by building or business unit (Massheder and Finch, 1998)
Space efficiency	Square feet per employee (Arthur Andersen, 1993; Nourse, 1994; Massheder and Finch, 1998; Bdeir, 2003) Percent of space occupied (Nourse, 1994; Bdeir, 2003) Gross floor area per usable floor area (Massheder and Finch, 1998)
Satisfaction	Customer satisfaction (Bdeir, 2003) Employee satisfaction with work environment (Arthur Andersen, 1993; Nourse 1994; Bdeir, 2003) Number of helpdesk calls per square foot (Bon <i>et al.</i> ., 1994) Provision of amenities (Bdeir, 2003) Absentee rates by buildings (Massheder and Finch, 1998)
CRE unit efficiency	Cost per corporate real estate employee (Bdeir, 2003) Actual extra occupancy cost versus predicted cost (Massheder and Finch, 1998)
Portfolio efficiency	Cost of acquisitions versus returns (Massheder and Finch, 1998) Holding costs per year (Massheder and Finch, 1998)

Besides the currently used measures listed in Table 3 researchers have suggested some more innovative measures for measuring the corporate real estate performance. Table 4 presents some measures suggested by various authors that are thought to be more innovative and suitable for strategic measurement of CREM. They can be grouped into 1) employee satisfaction, 2) CRE unit efficiency, 3) marketing and sales, 4) strategic involvement, 5) productivity, and 6) financial performance. These measures represent the range of impacts that real estate decisions can have on the organisation's performance, both directly and indirectly. For example, the choice of facility location and design can impact employee satisfaction, which in turn will influence productivity and turnover.

Table 4. Examples of more innovative performance measures found in the literature

Financial performance	Ratio of expenses to revenue (for income statement) (Lubieniecki and Desrcher, 2003) Capital expenditures (for cash-flow statement) (Lubieniecki and Desrcher, 2003) Value of property, plant and equipment (for balance sheet) (Lubieniecki and Desrcher, 2003)
Employee satisfaction	Quality of indoor environment (lightning, air conditioning, temperature) (Kincaid, 1994) Noise level (Kincaid, 1994) Location success factors (proximity to required transportation modes, access to employees; amount of local amenities) (Duckworth 1993; Lubieniecki and Desrcher, 2003) Ratio of office to common areas (Lubieniecki and Desrcher, 2003)
CRE unit efficiency and quality	Number of service requests handled in a month (Tranfield, 1995) Response time to the service requests (Tranfield, 1995; Kincaid, 1994; Varcoe, 1996) Customer satisfaction with responsiveness (Amaratunga and Baldry, 2000) Time taken to turn around jobs (Tranfield, 1995; Hinks and McNay, 1999) Range of services offered (Amaratunga and Baldry, 2000) Projected revenue against budget (Lubieniecki and Desrcher, 2003) Employee satisfaction with CRE services (Duckworth, 1993; Lubieniecki and Desrcher, 2003) Total operating expenditures versus budget (Hinks and McNay, 1999; Lubieniecki and Desrcher, 2003)
Marketing and sales	Location success factors (proximity to requires transportation, access to customers, distance to other sites and businesses) (Duckworth, 1993; Lubieniecki and Desrcher, 2003) Rating based on building attributes (Duckworth, 1993)
Strategic involvement	CRE involved in corporate strategic planning (Lubieniecki and Desrcher, 2003) CRE integrated with HR strategies (Lubieniecki and Desrcher, 2003) CRE actively involved in firm-wide initiatives such as special asset use, consolidations, or shared services opportunities (Lubieniecki and Desrcher, 2003)
Productivity	Distance employees commute (Duckworth, 1993)

3 PHASE I: CREATING A MODEL

3.1 Empirical study

This subchapter concentrates on presenting the research methods and procedures and of the first phase of this study. Furthermore, this subchapter shows how the theme interviews link together the papers 1, 2, 3 and 4 and the research questions.

3.1.1 Systematic combining

As was explained in the introduction chapter, the phase I of this study follows the abductive logic. The analysis process in the abductive research approach could be called as “systematic combining” (Dubois and Gadde, 2002). Systematic combining can be described as a nonlinear, path-dependent process of combining efforts with the ultimate objective of matching theory and reality. One prominent feature regarding how to build theory from empirical evidence in general is that of “frequent overlap of data analysis with data collection” (Eisenhardt, 1989). Strauss and Corbin (1990) illustrate the efforts of the researcher as a constant move “between asking questions, generating hypotheses, and making comparisons”.

By following the systematic combining logic of the abductive research approach described by Dubois and Gadde (2002) the analyses process and the construction of the model is done in this research by constantly going “back and forth” from one type of research activity to another and between empirical observation and theory. This way the researcher is able to expand her understanding of both the theory and the empirical phenomena as Dubois and Gadde (2002) illustrates. Figure 5 illustrates the basic ingredients in systematic combining.

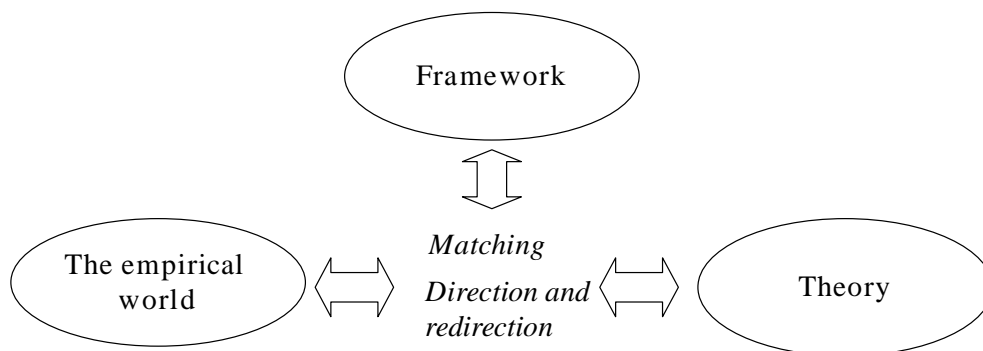


Figure 5. Systematic combining in this study (applied from Dubois and Gadde, 2002, p. 555)

The preliminary analytical framework consists of articulated “preconceptions”. Over time, the framework is developed according to what is discovered through the empirical fieldwork, as well as through analysis and interpretation and comparison between the theory and the empirical evidence.

What is referred as the theory in this study is presented in Chapter 2 "Theoretical background". The empirical evidence and the procedures for collecting it are described in the following subchapters.

3.1.2 Interviews

As Dubois and Gadde (2002) states, the search for empirical framework directs the search for empirical data. Empirical observations might result in the identification of unanticipated, yet related issues, which may be further explored in interviews or by other means of data collection. This might bring a further need to redirect the current theoretical framework through expansion or change of the theoretical model.

As was explained in the introduction chapter, the theme interviews were selected as the primary data collection source in the Phase I. This selection was made, because it was believed that interviews are the best way to obtain data from the topic, which is not much studied before. The purpose was also to gain new insights. The interview was considered as a flexible and adaptable way of finding things out. Face-to-face interviews offer the possibility of modifying one's line of enquiry, following up interesting responses and investigating underlying motives in a way that postal and other self-administered questionnaire cannot. Non-verbal cues may give messages which help in understanding the verbal response, possibly changing or even, in extreme cases, reversing its meaning (Robson, 1993).

Nevertheless, interviews have their disadvantages as well. Firstly, interviewing is time consuming as interviews require careful preparation and interview sessions themselves may become lengthy. Secondly, sometimes it appears difficult to obtain cooperation from the potential interviewees (Robson 1993). Thirdly, interviews are exposed to observer bias. As a result, the data may be distorted, resulting in wrong generalisations. In spite of the best efforts the personal bias cannot be totally eliminated in this method. However, it was decided that interviewing was the most suitable method with regard to the aims of this study, particularly due to the under-researched nature of the subject.

Interviews vary in their nature; they can be structured, semi-structured or unstructured. The major differences lie in the constraint places of the respondent and the interviewer. In a structured interview, the interviewer administers a questionnaire with a little scope for probing those responses by asking supplementary questions to obtain more details and to pursue new and interesting aspects. In unstructured interviews, at the extreme, the interview is close to monologue with some prompts to ensure completion. Semi-structured interviews fill the spectrum between the two extremes. (Fellows and Liu, 2003). For the purpose of this study, the semi-structured questionnaire was decided to be most suitable.

3.1.3 Questionnaire

Based on the research problems, previous research and consultations with other corporate real estate researchers the themes for the semi-structured questionnaire was developed. As Hirsjärvi and Hurme (2004) recommend, the questionnaire for the theme interviews should not be a detail set of questions but rather a list of themes, which represents the main concepts of the theory involved. The questionnaire developed for this study covers several themes. These themes are:

- Background information
- the real estate strategies
- the added value of CREM
- the measures.

The background information gathered in the interviews was used for categorising the organisations the interviewees represent. They were also used for clarifying the main roles and practices of CREM in the whole organisational context. Questions were also used for clarifying the decision-making process in the organisation and for finding out the possible problems related to the organisational structure.

The main purpose of the strategy theme was to identify the ways CREM organisations are creating the added value at this moment. This was done by asking the content of the core business strategies, the mission statements of the CREM functions and CREM strategies. In addition, the strategy development process practices were studied and the connections between core business strategies and CREM strategies were identified.

For identifying the ways CREM is creating added value or could create added value (=value adding attributes) it was asked questions related to the added value in general and the added value in the context of the CREM.

The main purpose of the measure theme questions was to study the ways CREM functions are measuring their performance, what measures they are using and what measures they are reporting to the core business. In addition, the views of the respondents of good CREM performance measures were studied.

The individual papers 1, 2, 3, 4 are related with these theme interviews (Table 5). The paper 1 concentrates on the role of CREM and real estate strategies themes. Paper 2 presents the results of the interviews concerning the added value theme and presents the first version of the model for identifying added value of CREM, followed by paper 3, in which the results of the measure theme is added and the second version of the model is presented. Paper 4 concentrates on the general measurement practices and CREM measurement systems and tools.

Table 5. The data collection methods, themes and outcomes of the papers 1, 2, 3 and 4.

Paper	Data collection method and theme	Outcome
Paper 1. Lindholm, A-L., Kiinteistöjen käyttäjäorganisaatioiden kiinteistöjohtamisen strategioista (corporate real estate strategies), <i>Maanmittaus</i> , 2005, 1-2, 24-41.	Theme interviews (the role of CREM in the organisation and real estate strategies -themes)	Present state review
Paper 2. Lindholm, A-L, Gibler, K. M., Leväinen K. I., Modeling the Value-Adding Attributes of Real Estate to the Wealth Maximization of the Firm, <i>Journal of Real Estate Research</i> , 2006, 28:4, 445-475.	Theme interviews (added value -theme) Literature survey	A first version of a model for identifying the added value of CREM
Paper 3. Lindholm, A-L., Leväinen, K. I, A Framework for identifying and measuring value added by corporate real estate, <i>Journal of Corporate Real Estate</i> , 2006 8:1, 38-46.	Theme interviews (measure -theme) Literature survey	Extended model for identifying the added value of CREM
Paper 4. Lindholm, A-L, Nenonen, S. A conceptual framework of CREM performance measurement tools, <i>Journal of Corporate Real Estate</i> , 2006, 8:3, 108-119.	Theme interviews (measure -theme) Literature survey	A conceptual framework of CREM performance measurement tools

In designing the actual set of questions under each theme, the aim was to use simple common terms, which would be familiar for the interviewees and develop unambiguous questions. At the end, the questionnaire comprised of a mix of closed ended and open ended questions to get the respondents to fully explain their ideas and opinions on subjects previously not specifically studied. The questionnaire was pre-tested with two Finnish corporate real estate executives. One was a corporate real estate director for a Finnish transportation firm and the other holds a similar position with a public organisation. The questionnaire was revised based on their comments.

3.1.4 Sample

Qualitative researcher usually works with small samples of people, nested in their context and studied in-depth –unlike quantitative researchers, who aim for larger numbers of context-stripped cases and seek statistical significance (Miles and Huberman, 1994). Qualitative samples tend to be purposive, rather than random (Morse, 1989). That tendency is partly because the initial definition of the universe is more limited, and partly because social processes have a logic and a coherence that random sampling can reduce to uninterpretable sawdust.

The choice for sampling strategy was done by selecting a strategy, which most benefits the interpretive, theory-building research like this. In qualitative research, random sampling

makes little sense since the researcher is not interested in “how much” or “how often”. Instead, since qualitative inquiry seeks to understand the meaning of a phenomenon from the perspectives of the participants, it is important to select a sample from which the most can be learned (Merriam 2002). The final sampling strategy was decided to be a mix of intensity and convenience strategies (Patton, 2002). Intensity sampling is based on the idea that the sampling is done by selecting information rich cases that manifest the phenomenon intensely, but not extremely. Convenience sampling refers to sampling, which aims to save time, money or effort.

At the end sampling was done by selecting organisations, which were known to be forerunners or research oriented in regard to the area of corporate real estate management. A convenience sample of 26 organisations with a range of core businesses was selected in Finland, the Netherlands, the U.K., and the U.S. The organisations were chosen across a wide range of industries, real estate portfolios and countries to ensure the development of general knowledge that will be useful across the borders and industries. The results, while not generalisable for estimating parameters or sufficient for tests of statistical significance, are useful for the development of a new theory and for acquiring new insights.

Corporate real estate executives were then selected within each organisation for interview, accessing their knowledge based on being continuously involved in the corporate real estate decisions and strategies in their organisations. The individual interviewees were chosen on the basis of their being active at the CREM field (participation in professional networks, seminars, workshops etc.) as well as professional contacts through CoreNet Global. In some of the organisations multiple members of the corporate real estate staff participated in the interviews to provide complete data on the organisation’s corporate real estate operations.

In addition, four leading corporate real estate consultants were interviewed. One from each of the countries included in the study, to gain perspective through their knowledge and experience with dealing with these issues in different kinds of organisations and business environments. The consultants were selected based on having experience in working with corporate real estate issues and strategic decision-making. In each country the selected consultant represents a major corporate real estate management service provider firm. The most common job title among the interviewed consultants was director or managing director. Their comments helped to interpret and organise the results of the interviews with the corporate real estate executives.

Table 6 presents the core business of each of the 26 organisations and 4 consultants, the home country of each organisation, number of people participating in the interviews, job titles of the respondents, and some descriptive statistics of the interviewed organisations and their real estate portfolio.

Table 6. Background information from interviewed organisations and respondents

Type of organisation	Core business	Country	Total employees	CREM employees	Properties total (m²)	Owned properties	Office space
18 Private	Air transportation	US	60 000	57	430 000	43 %	-
	Alcohol industry	UK	24 000	-	1 000 000	90 %	4 %
	Automotive systems	NL	40 000	-	-	-	-
	Bakery industry	Finland	3 900	1	180 000	-	1 %
	Banking services	US	130 000	100	6 500 000	30 %	100 %
	Beverage industry	US	70 000	11	4 000 000	88 %	20 %
	Broadcasting	US	8 000	250	285 000	54 %	80 %
	Broadcasting	Finland	3 700	60	270 000	70 %	85 %
	Building services consulting	Finland	280	0,5	5800	1 %	100 %
	Business consulting services	UK	9 000	20	-	-	-
	Data management	US	4 800	2	120 000	2 %	99 %
	Electronics	NL	165 000	450	8 500 000	67 %	-
	Energy providing	US	25 000	91	1 600 000	40 %	45 %
	Energy providing	Finland	14 000	55	320 000	30 %	90 %
	Home appliances manufacturing	US	68 000	8	4 600 000	68 %	10 %
	National central banking	Finland	630	20	130 000	90 %	46 %
	Telecommunication services	Finland	6 500	15	500 000	40 %	60 %
	Transportation (railway)	Finland	14 400	140	-	-	-
8 public	Education & research	Finland	3 000	28	230 000	0 %	30 %
	Education & research	US	3 000	250	420 000	90 %	11 %
	Education & research	NL	4 100	30	400 000	95 %	40 %
	Federal services	US	1 000 000	500	3 600 000	44 %	100 %
	Municipal services	Finland	6 300	300	625 000	90 %	80 %
	Municipal services	Finland	13 000	390	900 000	85 %	10 %
	Municipal services	Finland	6 300	36	430 000	85 %	80 %
	Municipal services	NL	1 700	12	47 764	100 %	100 %
4 consultants	Commercial real estate services	US					
	Facilities management consultancy	UK					
	Real Estate management services	Finland					
	CRE consultancy	NL					
	26 Average:		64 800	120	1 525 000	60 %	60 %

Note: - Data is not available

* Phone interview

3.1.5 Data collection

The interviews with the corporate real estate managers were conducted between January and June 2004. Typically each interview lasted for one to two hours. At the beginning of the interviews, the research project was presented in general to the interviewees. In addition, it was told that the research itself is confidential, individual interviewees and their organisations will be presented anonymous and the research results will be used only for academic purposes.

At least two multilingual investigators participated in each interview, taking full notes. In those organisations where multiple members of the corporate real estate staff participated in the interviews, when questions asked for opinions and definitions, the participants often brainstormed and provided a group answer that was used in the analysis. In the US, UK and the Netherlands the interviews were conducted in English and in Finland the interviews were conducted in Finnish. Thus, the respondents in the US, UK and Finland were interviewed in their native language and those in the Netherlands were interviewed in their second language.

After each interview, notes and findings of both investigators were combined and compared. Subsequent to the interviews the notes were transcribed and the Finnish interview transcripts were translated in English by the researchers.

3.1.6 Data analysis and theory building

The interview transcripts were reviewed in the analysis sense for the first time soon after the interviews. This was seen as a good practice as the data was fresh and the researcher was still inspired by it. As Figure 6 illustrates there were three analysis groups and two rounds of analyses in the whole analysing process. In the first round of the analysing process the empirical data was divided into three groups based on the themes: strategies, added value and measures. In this first round of analysis the empirical data was analysed separately in these three groups. In the each of these groups, the analysis process was conducted by following the systematic combining process (Figure 6), by constantly going “back and forth” from one type of research activity to another and between empirical observation and theory. In the analysis process related, for example, to the strategy group, the empirical data was collected from the interview answers, which concerned the organisation and real estate strategies. Likewise the theory applied in this group was related to the strategy research.

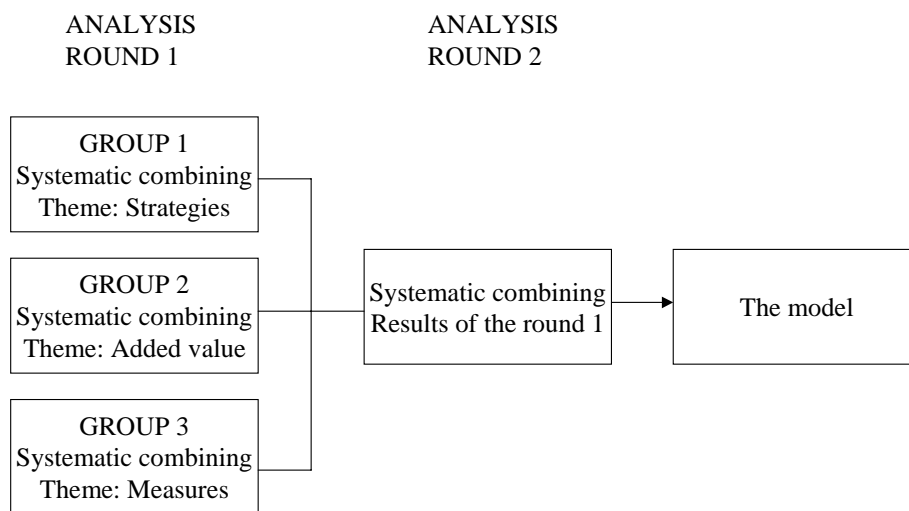


Figure 6. The three analysis groups and the two rounds of analyses

The systematic combining logic provided the basis for the data analysing and theory building process. However, there was still a need for procedures for analysing the empirical evidence. Grounded theory (GT) techniques (Strauss and Corbin, 1990) seemed to suit to capturing the interpretive experiences of interviewees and developing theoretical propositions from them.

The empirical data analysis was commenced by creating a provisional “start list” of codes prior to the empirical evidence gained from the first interview (a pilot interview) and then compared with the existing theory and the key concepts brought to the study by the

researcher resulting the preliminary categories. This conceptual model then became a vehicle for generalisation to the interviews and the cross-interview comparison. All the transcripts were coded using the preliminary set of codes previously developed. Occasionally, a segment of the transcript resulted the creation of a new code, or the refinement of an existing code or even the amalgamation of codes with the similar meaning. The development of the coding scheme was an on-going process throughout the transcription of each of the 30 interviews in each of the three analysis groups.

In the second round of analyses the results of the first round of analyses were used as “empirical data” and the existing theories and models on the added value of CREM were used as “theory”. The existing models include for example, the alternative real estate strategies presented by Nourse and Roulac (1993, p. 480) and elements of added value of real estate presented by de Jonge (1996 in Krumm, 1999, p. 66). At the end, this analysis process resulted in the first version of the model for identifying the added value of CREM.

3.1.7 Tri-angulation

Yin (1994) argues that any finding or conclusion in research is likely to be much more convincing and accurate if it is based on several different sources of information following corroborative evidence. Combining sources of evidence, while shifting between analysis and interpretation, usually denotes triangulation. According to Yin, the main advantage of triangulation is the development of converging lines of inquiry. Huberman and Miles (1994) express this as “self-consciously setting to collect and double check findings”. However, according to Dubois and Gadde (2002) in systematic combining, the emphasis on verification, i.e., checking the accuracy of data, is not the main issue. Rather, multiple sources may contribute to revealing aspects unknown to the researcher.

In this study, the interviews were combined with other sources of information:

- Interviews were carried out in 26 different kinds or organisations.
- Interviews were carried out with the corporate real estate staff members of the organisations. Most of the interviews were made with the corporate real estate directors, but some facilities managers and human resources managers were also interviewed.
- In addition to corporate real estate staff in the organisations, the interviews were made with four corporate real estate consultants.
- Printed sources of organisational information, such as firm presentations, annual reports, mission statements, strategy papers and performance measurement documents were used.
- Printed sources of CRE information, such as CRE presentations, real estate mission statements, real estate strategy reports, real estate plans, real estate performance measurement documents and case studies were used.

Observations during the interview meetings and other events beyond the control of the researcher contributed data that would not have appeared otherwise. These observations generated new questions on which further interviews could be based on. In addition, the

insights that resulted from unanticipated data contributed to further development of the framework.

3.2 Results of phase I

This subchapter concentrates on presenting the results of the first phase of this study. First the main results of the three different themes (strategies, added value, measures) are presented and then the model developed in the abductive systematic combining process is introduced.

3.2.1 Real estate strategies

The main purpose of the strategy theme was to identify the ways the corporate real estate management (CREM) organisations are creating added value at the moment. This was done by studying the content of the core business strategies, the mission statements of the CREM functions and the CREM strategies. In addition, the strategy development process practices were studied and the connections between core business strategies and CREM strategies were identified.

Almost without exceptions the main purpose (mission) of the CREM function seems to be supporting the occupier organisation. However, the ways to support the occupier organisation vary. Also the views of what the support actually means diverse. It seems that the distinctive issue is whether the support is direct or indirect. Direct support means easily observed, immediate ways, such as direct cost reductions, whilst indirect support means vicarious, hardly observed ways, such as the effects of the workplace to the employee productivity.

In the systematic combining process these different ways to support the occupier were analysed. The process resulted three main categories, which could be used for classifying the ways to support the occupier aroused from the data: 1) added value creator, 2) core business support, 3) cost factor. Table 7 illustrates with the examples these three types of categories formed on the grounds of the CREM missions.

Table 7. CREM missions of the interviews organisations

Added value creator

"to contribute to the business functions by means of real estate core business and develop the facilities in order to increase the productivity and usability"

"create added value to the business by real estate solutions, investments and sales."

"to be a centre of excellence for CRE that creates long-term value and furthers core business's competitive advantage"

"to provide top level services for internal and external customers"

"to support and structure the company's property portfolio with the objective of creating shareholder value"

"to support the core business and the whole business sector by real estate management, buildings and premises"

"to help business units better serve the customers by offering at best value, superior workplaces, expert solutions, acquisition services and management policies"

Core business support

"to provide functional workplaces and production facilities"

"enhance and support the core business by developing and maintaining the premises"

"to support the company's top management and business units with their short and long-term objectives"

"to help core business to better serve the customers by providing quality workplaces, efficient services and real estate management practices with suitable price"

"proactive management of the real estate portfolio so that the firm can manage in the ever changing business environment"

Cost factor

"to provide suitable and cost-efficient facilities without stressing the core business's resources"

"to provide cost effective premises and services"

"to provide solutions, which decreases the costs"

"to provide efficient workplace, with minimum costs"

"to minimize costs related to real estate and facilities"

"the primarily objective of real estate unit is to provide necessary infrastructure for core business."

Based on the research results the most typical CREM mission is to support the core business of an occupier organisation. Then the CREM mission is for example: "produce functional workplaces and industrial premises, which support the core business processes" or "Support the business management and function in their long-term objectives". The second common CREM mission is to create added value to the organisation. In these organisations the mission could be "to create added value to the business through real estate solutions, investments and sales" or "to support the core business and the whole business sector by real estate management, buildings and premises". The third category formed based on the CREM missions is the cost factor. In these organisations the mission is something like "producing solutions which reduces costs" or "providing efficient workplace by minimizing costs". These results are quite well aligned with Gibson and Barkham (2001) study, which indicates that in most of the organisations the mission of CREM was to create added value to the core business instead of reducing just costs.

To go deeper into the ways supporting the occupier organisation the content of CREM strategies and strategic objectives of the CREM function were studied. Based on the analysis, eight categories illustrating the ways and practices to support the occupier and fulfil the

mission were identified. These categories describe the content of CREM strategy. The categories are:

1. develop internal CREM processes
2. release assets to the core business
3. develop the real estate portfolio
4. support the image and brand of the organisation
5. support the productivity of employees
6. increase the efficiency of producing the end product of the organisation
7. optimize the facility services
8. increase the space use efficiency.

The most common CREM strategy seems to be related to developing the real estate portfolio. This category involves both the development of single site (technical and economical perspectives) and the devolvement of the whole portfolio.

The next common strategies are related to releasing assets to the core business and to supporting the image and brand of the organisation. Releasing the assets to the core business includes either selling the surplus properties or outsourcing the whole portfolio. Supporting the image and brand of the organisations includes the external characteristics of the building (architecture, size, location) or internal characteristics (customer facing facilities and workplaces).

Almost as common strategies were strategies related to developing internal CREM processes, for example “we are devoted to educate our employees” and strategies related to supporting the productivity of employees as “we provide productive workplaces, which supports the productivity of our employees” or strategies related to optimising the facility services “we provide quality FM services, which enables efficient and undisturbed working environment”.

Strategies aiming to increase the space use efficiency and strategies aiming to increase the efficiency of producing the end product of the organisation were also common among the interviewed organisations, though not as common as the others.

Albeit these research results indicate that the most common CREM strategies are still related to traditional way of physical buildings from the economical perspective, the results still differ from Gibler *et al.* (2002) results. Their study indicates that in most organisations CREM is concentrating just on acquiring the needed space in the lowest price instead of concentrating on the benefits and added value created from the increased productivity and flexibility. In this study these newer ways to create added value to the core business seems to be more important than previous studies have indicated.

It was noted that the organisations whose missions were concentrating just on direct ways to support the occupier were alike in their strategies as well. Most of these organisations did not have a proper real estate strategy or the strategy was straightforward.

“Our strategy is very simple: We provide the infrastructure the core business needs by acquiring the properties and facilities with lowest price and we aim to sell the properties we do not need with the highest price.”(CRE director of an American public organisation)

“We do not have a clear real estate strategy, but our guidelines are minimizing the space costs and the effective fulfilment of the requirements related to the physical working environment” (CRE director of an American company)

On the other hand it was noted that organisations, which were focusing both on the direct and indirect ways to support the occupier have multiple ways to reach their aim. This could be seen from the categories as well. Amongst the eight categories, which are describing the CREM strategy, all are focusing either indirect ways only or both. None of the categories were focusing only direct ways to support the occupier.

3.2.2 Identifying the value adding attributes

For identifying the ways CREM is creating added value, or could create added value (=value adding attributes), the interview results related to added value in general and the added value in the context of the CREM were taken into the analysis. In addition, the case studies and the added value examples gained from the interviews with the CRE consultants were taken into the analysis.

For identifying the added value in general level, the respondents were first asked to think about defining “added value” to the organisation in a general way. The participants were allowed to provide multiple definitions of added value, some of which could overlap. However, when asked to define “added value” in a general way, many of the respondents answered in the context of the contribution of the corporate real estate, rather than in a broader, more generic sense. Thus, few participants stated that supporting the core business is adding value. Among those who were able to describe added value in a broader context, their perceptions do reflect several of the interpretations found in the literature.

In line with shareholder theory respondents contended that added value is about increasing the value of the organisation. Most of them identified increasing profitability as a primary way to add value. Some mentioned either improving efficiency or productivity as a means of adding value. Some cited decreasing costs. They also mentioned increasing revenue or income. All these are consistent with the model proposed by Kaplan and Norton (2004). The contextual nature of what one can do to add value to the organisation becomes evident from some of the responses. The appropriate actions to add value to the organisation vary with economic conditions and competitive position.

Thus, one cannot identify one “best” way to add value to the organisation. Respondents from some organisations point out the need for understanding that every organisation has multiple stakeholders (owners, employees, customers) with sometimes conflicting goals. Thus, what would add value for one stakeholder may not add value to the position of other stakeholders, so actions must be evaluated in terms of their impact on each group of the interested parties. However, based on the analysis of this empirical data set, it seems that the nature of the added value in general meaning is more close to the shareholder value theory

than the stakeholder value theory. According to the shareholder value theory, value to the firm is created by maximizing the wealth of the shareholders. Thus, it could be stated that the corporations' primary aim is to add to the wealth of the shareholders. In line with Kaplan and Norton (1996, 2000, 2004) and CRE literature (Krumm and Vries, 2003; Burns, 2002) this research suggests that organisations have two basic approaches for increasing the shareholders' value: revenue growth and productivity.

When analysing how the corporate real estate executives perceive real estate and facilities management functions specifically create added value to the core business and the occupier organisation, the answers reflect several different themes. Table 8 provides, with some editing, the interviewees' stated perceptions of how CREM creates added value to the core business. Dominant throughout the responses is CREM's supportive relationship to the core functions of the organisation and the need for the real estate decision makers to participate in the strategic process to ensure real estate strategies and decisions that support the core business. Several respondents point out how their real estate knowledge and expertise allows them to establish standards and decision criteria that ensure their efforts to have the desired effects in support of the organisation's goals. The interviewees often describe the value added by CREM in terms of more than one concept.

Table 8. Summary of interviewees' definitions of added value of CREM

Definition	Statements: Added value is created to the core business by... (Statements may be classified into more than one category)
<i>Decreasing costs</i>	<ul style="list-style-type: none"> "standardizing workplaces." "being a control mechanism between business units and real estate needs." "efficient use of resources (workplaces)." "minimizing occupancy costs." "optimising real estate service production (outsourcing)" "providing negotiation rooms with high-tech connections (major savings in travel expenses)." "having an economical view in service purchasing." "creating economies of scale (cheaper contracts)." "providing services that save time or costs or work." "providing solutions for core businesses that lower their expenses." "providing more efficient working environment for the core business."
<i>Increasing productivity</i>	<ul style="list-style-type: none"> "having knowledge of core business and by providing facilities that support the core business." "providing services that save time or costs or work." "providing more efficient working environment for the core business." "supporting production." "providing space that is efficient and attracts employees." "improving logistics through site selection and planning." "ensuring that maintenance operations do not impact on the core business." "finding suitable locations for different functions." "providing workplace solutions that affect the productivity and innovativeness of employees." "providing optimal working environment (lightning, acoustics, temperature, etc.) for employees."

Table 8. (continued) Summary of interviewees' definitions of added value of CREM

Definition	Statements: Added value is created to the core business by... (Statements may be classified into more than one category)
<i>Participating in strategic processes</i>	<p>"creating a good communication link with the strategic level of the organisation."</p> <p>"better core process knowledge."</p> <p>"speaking the same language with different shareholders."</p> <p>"providing strategic support in real estate issues."</p> <p>"realising that all problems aren't necessarily real estate problems."</p> <p>"forming a strategic link with the core business."</p> <p>"being professionals; advising core business in every level of real estate issues."</p> <p>"having good relationships with the decision makers."</p> <p>"aligning the core business and real estate and workplace strategies."</p> <p>"translating the business needs."</p>
<i>Increasing employee satisfaction</i>	<p>"providing optimal working environment for employees."</p> <p>"providing amenities desired by employees."</p> <p>"providing pleasant working environments to employees (clean...)"</p> <p>"maintaining a world class workforce and world class workplace, which is pleasant and productive."</p> <p>"being service oriented."</p> <p>"providing space that is efficient and attracts employees."</p> <p>"providing pleasant workplaces that are also pleasurable for end-users and usability is high."</p> <p>"providing better customer services so that the end-customers are happier."</p>
<i>Increasing value of assets</i>	<p>"making sure the portfolio is optimal for core business (not too much capital tied up)."</p> <p>"financial management in real estate issues."</p> <p>"selling properties (generating cash)."</p> <p>"providing alternatives to meet operational and financial objectives."</p> <p>"knowing the right timing (when to sell)."</p> <p>"providing real estate solutions that creates value to shareholders."</p> <p>"acquiring properties for the lowest price and selling properties that are surplus assets."</p>
<i>Increasing flexibility</i>	<p>"finding flexible accommodation solutions with a short term, mid term, and long term perspective."</p> <p>"being flexible (instant offices, hot-desking etc...)"</p> <p>"making sure the portfolio is optimal for core business (not too much capital tied up)."</p> <p>"delivering real estate when needed."</p> <p>"providing alternatives to meet operational and financial objectives."</p> <p>"becoming as flexible as possible (cost efficiency and asset efficiency)."</p>
<i>Promoting marketing and sales</i>	<p>"selecting properties that support the image and brand of the firm and image of the whole industry."</p> <p>"ensuring that facilities support customer's mission."</p> <p>"providing an appropriate infrastructure that focuses on safe environments and customer service."</p> <p>"providing the right combination of amenities to support a given operations at an appropriate"</p> <p>"creating a high-level real estate environment for the core business, which attracts also customers, high-class buildings etc. "</p> <p>"supporting the organisation brand (providing workplaces that mirror the brand)."</p>
<i>Increasing innovations</i>	<p>"workplace solutions that affect the productivity and innovativeness of employees"</p> <p>" providing real estate solutions that support the revenue generating opportunities (innovations)."</p> <p>"providing pleasant workplaces that are also pleasurable for end-users and usability is high."</p> <p>"creating synergy advantages by placing the employees based on their job tasks (use of work process descriptions in the workplace planning)."</p>

Following the similar research results than in the analysing of the CRE missions, the most typical way the respondents believe CREM adds value to the core business is through cost reduction, a value adding attribute identified by de Jonge (in Krumm, 1999) and partially included in Nourse and Roulac's (1993) real estate strategy list. The respondents mention reducing acquisition costs and occupancy costs through proper timing and economies of scale. Almost two-thirds of the responding organisation CREM staff thinks CREM adds value by actions that could increase productivity by supporting production and maintaining workspaces. Productivity is also one of the elements of added value identified by de Jonge (in Krumm, 1999).

The third most common method of CREM adding value is "participating in the strategic process." The respondents relate the importance of strategic planning in terms of "translating the business needs into real estate strategies and operations, which support core business strategies" and "aligning the core business and real estate and workplace strategies." The added value of CREM is also thought to be related to knowledge of the core business and having good communication links and networks with the strategic level of the organisation. The respondents cite how their "real estate department operates closely with other support services of the organisation such as human resources and information technology," the "real estate department consults regularly with other business units concerning the role of real estate" and the "real estate department is able to speak the same language with different stakeholders." These findings are in line with Pittman and Parker's (1989) results, where they found that of the five most important factors that are believed to be important to a top-performing CREM department, four were communications or relationship factors. Thus, the respondents recognize that their real estate decisions will not add value to the organisation unless they are in alignment with decisions of the other functional departments' and in support of the organisation's overarching goals. Consistent with Miller and Cardinal's (1994) findings that the amount of strategic planning can affect an organisation's performance, these corporate real estate managers recognize that such planning is essential to the organisation's success and their unit's contribution to that success.

Respondents from some organisations suggest that the workplace and its role in recruiting and retaining a world-class workforce is important in identifying the role of real estate in adding value to the organisation indirectly. De Jonge (in Krumm, 1999) did not identify this as an element of real estate's added value, but Nourse and Roulac (1993) mention employee satisfaction under the broader heading of "promote human resource objectives."

Timing the purchase and sale of real estate assets (managing the firm's real estate portfolio) is perceived by seven responding organisations as a way they create added value. Respondents from some organisations also mention either physical or financial flexibility. Other respondents cite image and serving customers, both related to promotion and marketing, as means of CREM adding value to the organisation. All three of these value adding attributes were listed by de Jonge (in Krumm, 1999), while Nourse and Roulac (1993) did not identify asset management as a corporate real estate strategy.

A less frequently perceived way to create added value is "increase innovations". The role of real estate in innovations was somewhat recognized by de Jonge (in Krumm, 1999) as changing the culture and Nourse and Roulac (1993) as facilitating knowledge work.

Based on the analysis process concerning the added value theme, it seems that the ways and possibilities of creating added value and supporting the occupier organisation are in line with the ways they are supporting the occupier at the moment (strategy theme). The ability of CREM to increase innovations was the only way, which was identified amongst the added value theme, not under the strategy theme. The value adding attributes identified in this research are also well in line with the previous findings (e.g. Nourse and Roulac, 1993; de Jonge, 1996). However, the categories formed in this research differ from the categories developed in the previous research.

It also seems that the ways to think the added value in general are quite conventional, shareholder-value-driven ways. However, this might be due to the relative large amount of American companies in the sample. The stakeholder value theory is more dominant in Europe than America. It was also noted that in the public organisations the stakeholder value perspective was more common than in private companies. This also reflects the ways they see the CREM possibilities to create value. Public organisations tend to see multiple ways and take the effects CREM into account in all organisational levels: employees, core business, owners and the environment, whilst private companies are typically focusing only on the one level.

In addition to the general way to think the added value there seems to be no identified differences amongst the different organisation types and the way they create added value to the occupiers. Neither the continent/country of the organisation reflects to the results nor the core business or the size of the organisation. However, as the sampling was based on the mix of intensity and convenience strategies (by selecting organisations, which were known to be forerunners or research oriented in regard to the area of corporate real estate management) no general conclusions can be based on this data regarding the differences between the different types of organisations.

3.2.3 Measuring the CREM performance

The main purpose of the measure theme was to study the ways the CREM functions are measuring their performance, what measures they are using and what measures they are reporting to the core business. In addition, the views of the respondents of good CREM performance measures were studied.

When solving the strategic performance measurement practices, more than a half of the interviewed organisations stated that they have CREM performance measures, which are derived from the organisation's strategy and/or objectives. However, the measurement practices vary a lot amongst the organisations. Some of the organisations had only a few real estate measures, which they report time-to-time to the top level of the organisation, whilst some of the organisations had quite comprehensive CREM performance measurement systems. In fact, the use of a performance measurement system seems to be more common when the real estate system is a part of the company wide measurement system, such as the Balanced Scorecard or Six Sigma.

Typically, the measurement systems were more like a set of individual measures, and have been developed over the years as new measures were added to the system. The systemically constructed measurement systems were in many cases based on a performance measurement framework, such as the balanced scorecard (BSC). In some cases the CREM unit has created their own CREM BSC, which was or in some cases was not based on the organisational strategies. These CREM BSCs were mainly used in the internal purposes and the results of the measures were not reported to the core business. In other cases CREM measures were part of the organisation wide performance measurement system. The main problem with this kind of strategic performance measurement seems to be the lack of comprehensive CREM measures, which could provide the overall picture of the CREM processes and outcomes. This has led to the situation where the organisations are using various CREM measures, each of them indicating one aspect of CREM (e.g. financial, technical, organisational). This in turn, has not satisfied the strategic level of the organisation, which prefers fewer and broader measures.

In addition to the strategic performance measurement, it was clear from the interviews that the CREM performance measurement also concentrated on other purposes as well. Probably due to the pure supportive role of CREM in the business environment, organisations are using plenty of measures in CREM, which are not considered as strategic. The results of these measures are not reported to the top level of the organisations, but they are seen as important tools for evaluating, controlling and improving internal processes. In many cases these measures are related to the workplace management processes or projects. For example, after major workplace change projects the organisations need to evaluate how the change has succeeded or what are the benefits of the change. Typically the evaluation or measuring is performed by following structured techniques and methodologies, which are developed for these kinds of situations, such as the post occupancy evaluation (POE) or the building-in-use (BIU).

Interview results related to individual CREM measures indicated that while most companies are relying on traditional cost per square metre performance measures, many have also started measuring employee satisfaction with the workplace. Space per employee, physical condition of properties, and client satisfaction with services are also commonly evaluated. Few organisations are using measures tying real estate costs to sales or revenue. Very few are trying to measure intangible elements of performance, yet recognize how helpful it could be to have such measures.

Table 9 provides a list of potential performance CREM measures identified in this research. There are measures for different purposes and CREM aims. Typical for these measures is that many of them could be used for measuring different kinds of CREM effects, not just the one identified in the table. For example, *persons per seat* could be used for measuring the workplace productivity, employee productivity or cost reductions. Likewise, the *quality of indoor environment* could be used for measuring the employee productivity or employee satisfaction or even the value of assets.

Table 9. Real estate performance measures (Lindholm and Leväinen, 2006)

Real estate strategy	Potential measures
Reduce cost	Occupancy cost per square foot/ metre Occupancy cost per seat Occupancy cost per employee Occupancy cost per dollar/unit of revenue Occupancy cost as a % of total operating expense Occupancy cost as a % of operating revenue by business unit Occupancy cost as a % of operating revenue by building Occupancy cost per unit of production Occupancy cost as a % of total labour and overhead by business unit Occupancy cost by building Space (Square feet or metres) per employee Whether workplace standards are used Percent of space occupied Percent operational space versus non-operational space Total owned and leased space (square feet/metres) Persons per seat Number of moves per year Cost of under utilized space Real estate cost per CRE employee Total CREM operating expenditures versus budget
Increase flexibility	Percent leased space relative to total space Length of lease terms Use of virtual and flexible workspaces
Increase productivity	Employees' opinions on how well the workplace supports their productivity Distance employees commute Distance among company sites and businesses Time wasted with interruptions (due to open space layout) Percent shared services No loss of business due to real estate service failure Real estate spending as % of gross margin Real estate spending as % of total operating expenses Time used on real estate projects versus time budgeted for projects Money spent on real estate projects versus money budgeted for projects Amount of real estate advice given to other business units Number of service providers/service level agreements Number of transactions/projects/leases per FTE employee CRE employee qualifications Employee turnover Number of steps/time for real estate approval process Use of audits for service providers
Increase employee/ internal client satisfaction	Distance to required transportation modes for employees Employee satisfaction with work environment Quality of indoor environment (lightning, temperature, noise) Workspace (size, shape) Amount of nearby amenities for employees Range of services offered by CREM Employee/internal customer satisfaction with responsiveness of CREM staff Employee satisfaction with CREM staff professional skills Employee satisfaction with CREM information sharing CREM response time to requests Competence of CREM staff Investment in training per CREM employee

Table 9. (continued) Real estate performance measures (Lindholm and Leväinen, 2006)

Real estate strategy	Potential measures
Promote marketing and sales	Number of workstations per employee Distance to required transportation modes for customers Distance to customers Use of company logos and colours in workplace design Image rating based on building attributes Energy consumption (conservation) Number of energy audits Environmental sustainability of buildings
Increase value of assets	Real estate cost of acquisitions versus returns/IRR Lease vs. construction or ownership cost comparisons Aging reports for leases Real estate holding costs per year Number of building quality audits Real estate return on investment Real estate return on equity Business return on real estate assets Sales or revenue per square foot (metre) Space (square feet or metres) per unit (dollar) of revenue Market capital value versus book value by building Percentage of surplus assets sold Time to dispose of properties versus plan Cost of disposal of property versus savings Time to clear buildings versus plan Number of development projects for obsolete properties Status of risk management activity (contaminated sites)
Effectiveness in corporate strategic process	Percent CREM employees indicating strong understanding of how their jobs fit into attaining corporate objectives CREM involved corporate strategic planning CREM integrated with other functional strategies (HR, IT, etc.) CREM actively involved in firm-wide initiatives such as special asset use, consolidations, or shared services opportunities Number of formal and informal CREM meetings with top executives Fulfillment of CREM strategic aims CREM communication time with top executives Self evaluation of how well CREM decisions support strategy

Based on the research findings concerning the measures it seems that the organisations did not have any innovative real estate related measures in use, which are not reported in the previous literature. However, there is a need for innovative measures, which could be used in identifying multiple aspects of CREM, but no one seemed to know how to produce these kinds of measures or what they could be. The other problem with the measures is the data collection. It was seen that in many cases it is too difficult and time-consuming to collect the reliable data for the measures. This in turn lead up that the organisations rather preferred to stay without the measures than to take the efforts. The efforts were taken only if the top management insisted on having a certain type of measure.

Usually the CREM units report to the top management only the measures that the management is asking for. These measures are typically cost related or real estate value related measures, such as *occupancy cost / square meter* or *real estate holdings per year*. None of the organisations involved in this study reported those measures, which express the CREM

contribution, for example marketing and sales, not to speak of profitability or revenue growth, which were identified as the general ways to create added value in this study.

3.2.4 Modelling the added value of CREM

As a result of the systematic comparison process described in the subchapter 3.1 the framework, a model for identifying and measuring the added value of CREM, is constructed (Figure 6). The model was constructed by combining the results gained from the strategy, added value and measure themes as described in the subchapter 3.1.6.

The model starts with the idea that business strategy can be comprised of two basic approaches for increasing the shareholders' value: revenue growth and profitability. These corporate strategies must then be translated into supporting real estate strategies that guide the operating decisions. The key idea in this model is to identify real estate strategies that can create added value to the core business, contributing to the wealth of the organisation and shareholder's value. The proper combination of real estate strategies will vary depending on the corporation's strategic positioning within the market. The organisation may want to emphasize revenue growth through building the franchise and/or increasing value to its customers. Alternatively, it may want to emphasize profitability through improved cost structure and more efficient use of assets.

Based on previous research presented in Chapter 2 and the results of the interviews, corporate real estate strategies are organised to support these core business strategies into the seven alternatives shown in Figure 7: (1) increasing the value of assets, (2) promoting marketing and sales, (3) increasing innovation, (4) increasing employee satisfaction, (5) increasing productivity, (6) increasing flexibility, and (7) reducing costs. These strategies can be used to set objectives and guide real estate decisions, which in previous research was shown to directly or indirectly affect the core business of the organisation.

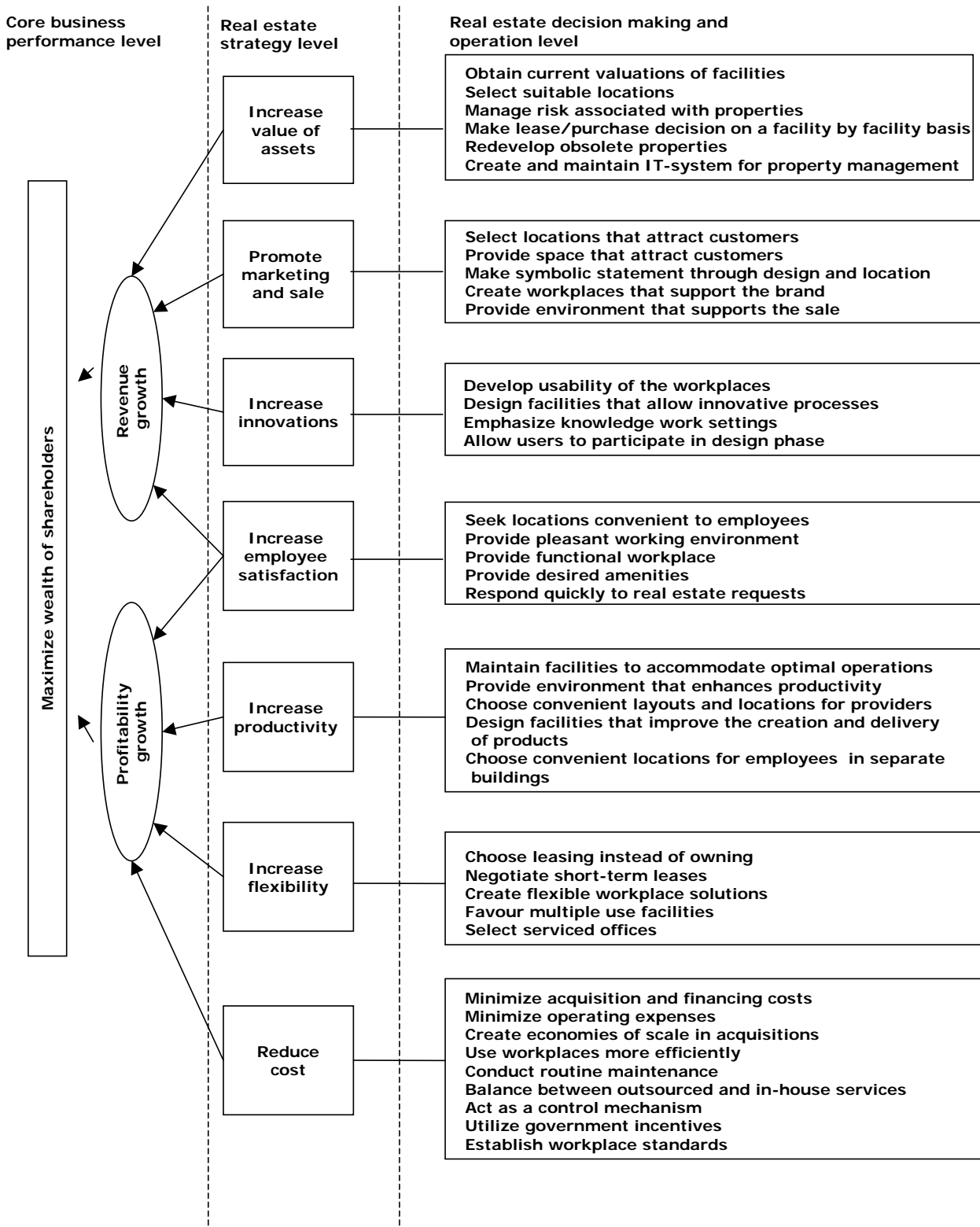


Figure 7. The model for identifying the added value of CREM

The first strategy, increasing the value of assets through managing the real estate portfolio, views real property as a capital asset that can be managed to optimise financial contribution to the organisation. The objectives may be to maximize the value of the property portfolio or

ensure that the lowest cost alternative is chosen considering all short- and long-term costs of owning versus renting. However, proper management of the company's portfolio must start with an inventory and valuation of current facilities, then management via a property information system.

Real estate can contribute to the marketing and sales strategies through site selection and physical design. Accessibility and visibility are keys to attracting customers and increasing revenues. Physical design can be used to create an image for the company among its suppliers, employees, customers, and investors, an indirect way of adding value to the organisation.

Increasing innovations is a less familiar real estate strategy. Many organisations are in knowledge businesses operating in very competitive environments. To survive and grow they need to innovate. These organisations need to provide workspaces that encourage and support innovative thinking and working. This requires the participation of the space users in planning spaces and providing the type, size, and design of workspace that creates an inspiring working atmosphere. This, in turn, will lead the organisations to the increased revenues that manufacturers achieve through innovation.

Increasing employee satisfaction with their working environments depends on real estate and facilities management decisions concerning site selection, workplace design and amenities, and environmental quality. Organisations making workplace decisions to improve employee satisfaction can expect to achieve the increased financial returns experienced by other firms in a range of industries who have recognized this indirect path to profits.

Increasing productivity will also lead to increased profitability. Real estate decisions on site selection, infrastructure and interior design directly impact the functionality of the space, allowing employees to work more efficiently and effectively. Real estate and facilities decisions influence a number of personnel and system factors, which influence the level of productivity of the individual and, subsequently, the level of productivity of teams and profitability of an organisation.

A strategy of increasing flexibility may include both physical workspace and financial terms. Many organisations form and reform work teams within their offices on a regular basis. They are experimenting with flextime and shared jobs that allow workers to share space. Others want to be ready to move into and exit markets quickly as conditions change. In contrast, most space agreements are long-term and workspaces relatively fixed, obligating the organisation to pay for space that is not optimal for its operations. If one of the key drivers of flexibility for the organisation is its workspace, then a real estate strategy that focuses on providing flexible space matching the duration of business needs will support the organisation's core strategy and add value to the organisation. Some operating decisions that would follow from a flexible real estate strategy include choosing spaces that can be adapted to multiple uses and workers, creating flexible workspaces within the structures, negotiating short-term leases including options for expansion and contraction, and leasing rather than purchasing properties that are not essential to the core business.

The most familiar of the strategies to increase profitability is reducing costs. Reducing cost in any area has a direct and immediate impact on the financial performance of the organisation. The most often mentioned real estate operating decisions to achieve cost reduction objectives include outsourcing some real estate services and using corporate real estate staff to oversee the real estate transactions of an operating unit. Other actions the organisations may consider in pursuit of this strategy include co-locating business units, occupying green buildings and choosing locations based on governmental incentives. They may reduce expenses by negotiating lower rates for real estate related services and utilities, and increasing quality and timing of facilities maintenance to avoid costly repairs and capital expenditures.

For the real estate strategies outlined above to add value to the organisation, CREM decision making must be linked to the strategic decision making level of the organisation and the corporate real estate staff must possess knowledge of the core business and its needs. Such knowledge creates confidence among business units who are then more willing to cooperate and depend upon the corporate real estate staff to make value-adding decisions. It also ensures that CREM can communicate its contribution to the organisation in a language that the top decision makers understand.

For long-term success, the organisation must also develop a set of performance measures to assess its progress toward achieving its objectives and thereby its main goal of maximizing shareholder wealth. Once an organisation has translated its overall business strategy into a proper combination of real estate strategies, it can set specific objectives appropriate to its products and services and its position in the market. Measurements of the key performance indicators can then be used to quantitatively assess whether real estate decisions are having the desired effect on the financial success of the organisation. Simply relying on traditional measures, such as space per employee, will not provide sufficient data on which to base strategic decisions. Analysis of key performance indicators (Table 10) will allow managers to adjust real estate strategies and operations accordingly.

4 PHASE II: VALIDATION OF THE MODEL

“The meanings emerging from the data have to be tested for their plausibility, their sturdiness, their confirmability –that is their validity. Otherwise we are left with interesting stories about what happened, of unknown truth and utility” (Miles and Huberman, 1994). The theoretical model for identifying and measuring the added value of corporate real estate management was constructed based on the results of the systematic combining process presented in Chapter 3. In addition to developing the model, the model was decided to be tested in this dissertation study, as well. The empirical testing of the theoretical model was done by conducting a constructive study. The constructive research approach (CRA) means problem solving in a real-life organisational setting through the construction of a management system. A constructive method is a solution-oriented normative method where the target-oriented and the innovative step-by-step development of a solution are combined, and which empirical testing of the solution is done and utility areas are analysed (Kasanen *et al.*, 1991).

The constructive research approach relies on a pragmatic notion of truth, i.e. ‘what works is true’, and the intervening role of the researcher is characteristic of the research process. (Lukka, 2000). It was seen that the validation (testing) of the model could be done by conducting a constructive study, where the general model is tested by implementing it in the case organisation. If the model passes the criteria of the constructive research approach, the validation of the model is successful.

According to Kasanen *et al.*, 1993, Lukka, 2000, Labro and Tuomela 2003, there are seven crucial steps in the constructive research approach:

1. to find a practically relevant problem, which also has research potential;
2. to examine the potential for long-term research co-operation with the target organisation;
3. to obtain a general and comprehensive understanding of the topic;
4. to innovate and construct a theoretically grounded solution idea;
5. to implement the solution and test whether it works in practice;
6. to examine the applicability of the solution’s scope ;
7. to show the theoretical connections and the research contribution of the solution.

The seven steps of constructive research approach are illustrated in Figure 8. The arrows refer to the time that elapses in each phase. Most steps in Figure 8 are partly overlapping with the previous and following phases. The third step - obtaining a profound understanding of the topic - continues throughout the whole research process. Similarly, the seventh step - showing the theoretical contribution - covers the entire research process. As Labro and Tuomela (2003) states “this is to say that theoretical linkages should be considered throughout the research process in order to make the project meaningful to the research community, even though the exact theoretical contribution can be elaborated on only in the final part of the research process”. Figure 7 illustrates how the seven steps of the constructive research process are also parts of three aggregate phases: the preparatory phase, the fieldwork phase and the theorizing phase (Labro and Tuomela 2003).

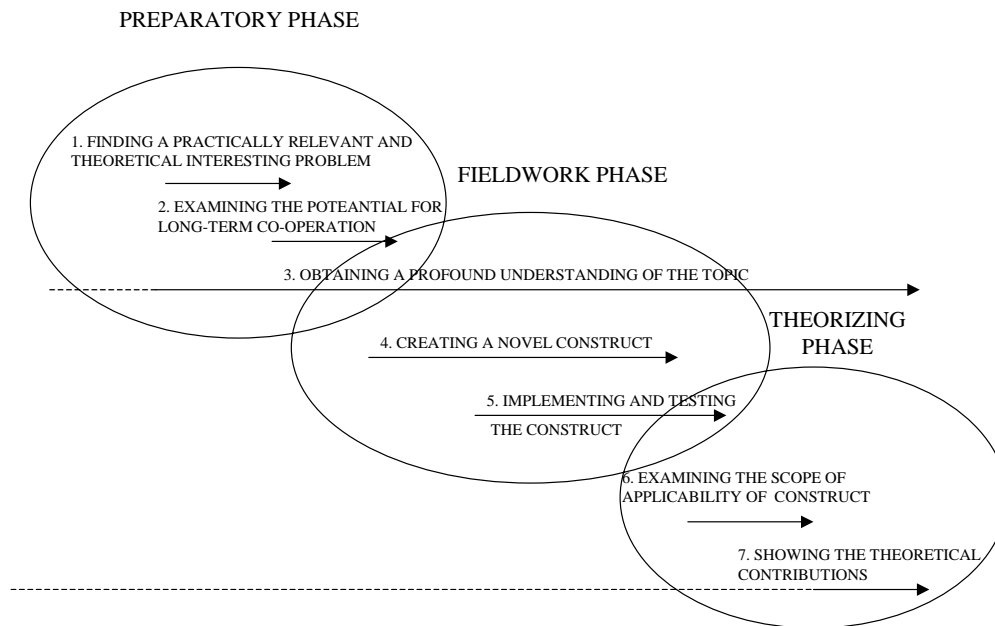


Figure 8. The phases and steps of constructive research process (Labro and Tuomela, 2003)

In this study the process for conducting a constructive study was applied to test the validity of the model developed by following the abductive research approach. The model is tested by using it for clarifying the real estate strategy of the case organisation and for developing appropriate performance measures to match to their strategy. Furthermore, the scope of the applicability of the model is examined and the theoretical connection and the research contribution are shown. The main focus of this research phase is to concentrate on the implementing of the model, examining the applicability of the model and showing the theoretical connection and the research contribution (steps 4 to 7 in the constructive research approach). The steps and criteria of the constructive research approach, as well as the actual testing of the developed model, are explained in the following sections.

Step 1: Practically relevant research problem

At the core of any constructive research lies a practical problem. According to Labro and Tuomela (2003) the development challenge should be directly relevant to managers or other decision-makers. On the other hand, the problem should also have theoretically significant potential to be solved (Kasanen *et al.*, 1993). Much of the contribution potential of constructive research lays on the premise that both instant practical progress and direct theoretical contribution are sought. Labro and Tuomela (2003) also state that this is a major differentiating factor between the CRA and consulting (which has an emphasis on practical contribution) or the majority of other research methods (which have an emphasis on theoretical contributions which may have some, but need not necessarily have any direct practical consequences).

In this study, the practically relevant research problem already existed as the form of the research problem (RQ: *How can the contribution and success of the corporate real estate*

management be identified and measured?) of this dissertation study. The literature review (Chapter 2) also revealed that no ready-made solutions were available in the literature.

Step 2: Examining the potential for long-term co-operation

The second step in CRA is to examine the possibilities for longitudinal co-operation with the case organisation(s) (Labro and Tuomela 2003). For implementing and testing the developed model, one case company should be found which would be interested in the study and motivated enough to give their time and resources to conduct the study in co-operation with the researcher. It was also believed that the motivation of the case unit would increase if they could somehow benefit from the study. The researcher decided to seek companies, which had no clear real estate strategy or performance measures in use at the moment. It was thought that these kinds of companies would benefit most from implementing the model.

At the end, the empirical study was decided to be carried out in a corporate real estate unit of a multinational Finnish industrial company. The company has a wide selection of metal products and services. It has operations in 23 countries and employs 13,000 people. The organisation chart and the location of the case unit in the company hierarchy are illustrated in Figure 9.

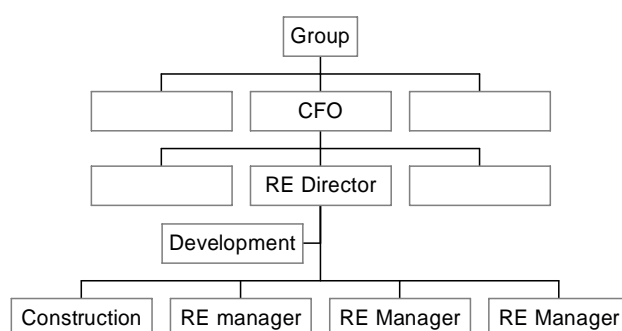


Figure 9. Location and the structure of the case unit in the group hierarchy

The company occupies more than 1,3 million square meters. More than 90% are production facilities, for example factories, warehouses and logistical facilities, and only 6% are offices. More than 95% of the company's real estate portfolio is owned and less than 5% is leased. The CREM unit of the company is responsible for all the group's real estate projects (construction and acquisitions), property management, real estate long-term planning, and facility and end user services.

According to Lukka (2000) gaining and maintaining the commitment of the case organisation is crucial for a research process to be successful. A possible way of ensuring commitment is to charge for the researcher's services (Kaplan 1998). However, in doing so, there might be some danger that a commercial consultancy relationship, with its inherent problems, will develop (Westbrook, 1995). In this research, the initiative came from the researcher, but the case unit was motivated to participate in the study right from the beginning. Compensation issues played an insignificant role in this study. The main motivator for the case unit was the "hot" topic of the study and the fact that the unit neither had a clear real estate strategy

defined nor any performance measures in use at that moment. They also were eager to have measures, which could be used for measuring their performance.

Labro and Tuomela (2003) states that the potential for co-operation is not only depending on the willingness of the case organisation to participate in the study. When examining possibilities for joint development work the values of different participants should also be carefully assessed. If the values of the researcher are in contrast with those of the case organisation, co-operation should not be initiated (Puolamäki 2000 in Labro and Tuomela 2003). In order to sustain the credibility of the constructive research, the researchers' and the managers' values should be made explicit (Mattessich, 1995).

The values of different participants were considered in examining the potential for co-operation. Since the core business focus and the creation of the added value of CREM were found to be the basic issues, it appeared that the values of the researcher and the case unit were well aligned. In addition to the practical issues related to co-operation, some publication issues were also considered as early as in the preparatory phase of the study. It was informally agreed that all the data collected from the case unit could be used, but the company itself wants to stay anonymous.

Step 3: Obtaining a profound understanding of the topic

Becoming familiar with both the practical and theoretical underpinnings of the topic constitutes the third step in the constructive research process (Labro and Tuomela, 2003). The researcher needs solid ex-ante knowledge of theory in order to make informed interventions (Dickens and Watkins, 1999). Even though the innovation phase may be very heuristic (Kasanen *et al.*, 1993), knowledge of previous literature is needed in order to identify and analyse the theoretical contribution of the study (Labro and Tuomela, 2003).

This study began by going through theory from strategic management along with research on business performance, corporate real estate management, facilities management, workplace performance (introduced in Chapter 2) and the results of interviews (Chapter 4) to develop a framework, which illustrates how corporate real estate directly and indirectly adds value to the core business and the wealth of the organisation. Furthermore, performance measurement literature was reviewed in order to obtain understanding on how to CREM performance could be assessed.

In addition to theoretical knowledge, Labro and Tuomela (2003) suggest that sufficient time should be devoted to getting acquainted with the case organisation and letting people at the case organisation familiarize themselves with the research and researcher(s). In this study, the researcher and the case organisation's personnel had good contacts already before the study began. The mutual trust made it easier for the researcher to obtain a profound understanding of the case organisation's situation in terms of CREM, strategies and performance measures. Also the aim of the practical problem-solving was likely to increase the commitment of the persons interviewed and hence reduce observer-caused distortions (Labro and Tuomela, 2003).

Step 4: Creating a novel construct

An intensive search for an (both practically and theoretically) innovative solution is the primary feature distinguishing constructive research from other types of actions research and from most consulting work (Labro and Tuomela 2003). According to Lukka (2000) the innovation phase is a creative, and possibly even heuristic, sequence of events during which co-operative teamwork between the researcher(s) and the managers of the case organisation is crucial.

After a preparatory phase the researcher of this study continued with close co-operation in the form of additional interviews with the case unit personnel. The data was collected with semi-structured interviews and workshops with the real estate specialist and the real estate director, and by studying all the available material related to real estate unit's objectives, strategies and performance. The first version of the construct was made by placing the existing real estate strategic aims of the case unit into the original model. The original strategic plan fit quite well into the model as it was. However, the CREM unit decided to change and clarify their aims a bit after seeing the true "value channels" in the model. The model helped them to see how their original strategic aims created added value to the core business and what channels or ways they are missing, even if they would like to include those in their actions.

Some discussions were held when defining the real estate decisions and actions, which support the strategic aims. For example, the understanding of the nature and the level of the added value differ depending on the viewpoint of the reviewer. For the case unit even taking care of some simple task was seen to create added value, because previously this task was not done at all. For some other CREM unit this same task might be a self-evident day-to-day operation, which is not seen in creating any added value. However, it was decided that there is no point in taking all the CREM decisions and actions in the model, which are creating added value at the moment, but we should include just those decisions and actions, which create added value in the long term.

The other in-depth discussion was held in relation to performance measures. During the research process it became clear that performance measures could be used in two purposes: for demonstrating how much CREM is creating added value to the core business or how well CREM is achieving its strategic aims. The actual measures would be different in these two situations. However, the case unit did not see a need to prove their value to the core business at the moment. They thought that the times were good for the core business and the main task for the CREM department was to support the continuous growth of the business. They also thought the core business knew the value of the CREM unit in acquisitions and merge situations. For this reason it was decided to take just those measures into the model, which illustrate how well the CREM unit is achieving its goals. In spite of case unit's good situation at the moment, they were aware of the fact that if and when the economic downhill starts, their situation might change and then they need more tools and measures for demonstrating their value. However, they were very convinced that only the measures, which demonstrate the economical benefit of CREM, could be used to prove the added value.

After the first version of the construct, there were many rounds of revisions, discussions and changes between the researcher and the case unit. At the end, the process resulted in the case unit's *model for identifying and measuring the value added by corporate real estate* (Figure 9). It was

found out in the case study that the most important channels for the case unit to create value to the company and its shareholders are *increase value of assets, increase productivity, increase flexibility and reduce costs*.

The real estate decisions and actions supporting the strategic aim of *increase value of assets* at the case unit are refurbishments related to long term maintenance programs, which refers to the aim of *redevelop obsolete properties* in the original model, create and maintain IT-system for property management and divest of useless properties, which stands for *make a lease/purchase decision on a facility by facility basis* in the model. The real estate decisions and actions supporting the strategic aim of *increase productivity* are ensuring the safety in the production facilities and avoiding the business loss due to FM service failures, which refers to *maintain facilities to accommodate optimal operations* in the model, developing CREM processes, reporting and cost management, which refers to *improve internal customer relationship management and improving CREM internal processes*. The real estate decisions and actions supporting the strategic aim of *increase flexibility* are to create flexible production facility solutions and fast reaction time in construction and acquisitions when core business is expanding. The real estate decisions and actions supporting the strategic aim of *decrease costs* are facility services re-organisation, which refers to having *balance between outsourced and in-house service and minimizing operating expenses, conducting routine maintenance* and conducting real estate due diligence in all core business merge and acquisitions, which refers to *consulting core business in real estate related issues*.

Figure 10 also includes the measures, which could be used for determining if the CREM unit is achieving its aims. *Increase value of assets* could be measured with number of *development projects for obsolete properties, status of IT-system, percentage of surplus assets sold or cost of under utilized space*. The aim of *increasing productivity* could be measured with *number of loss of business due to FM service failure, number of meetings with other business units, status of developments*. The aim for *increasing flexibility* could be measured with *core business satisfaction to facility flexibility and/or core business satisfactions to the reaction time*. The aim for *decreasing costs* could be measured with *occupancy cost per square foot or occupancy cost per unit of production*.

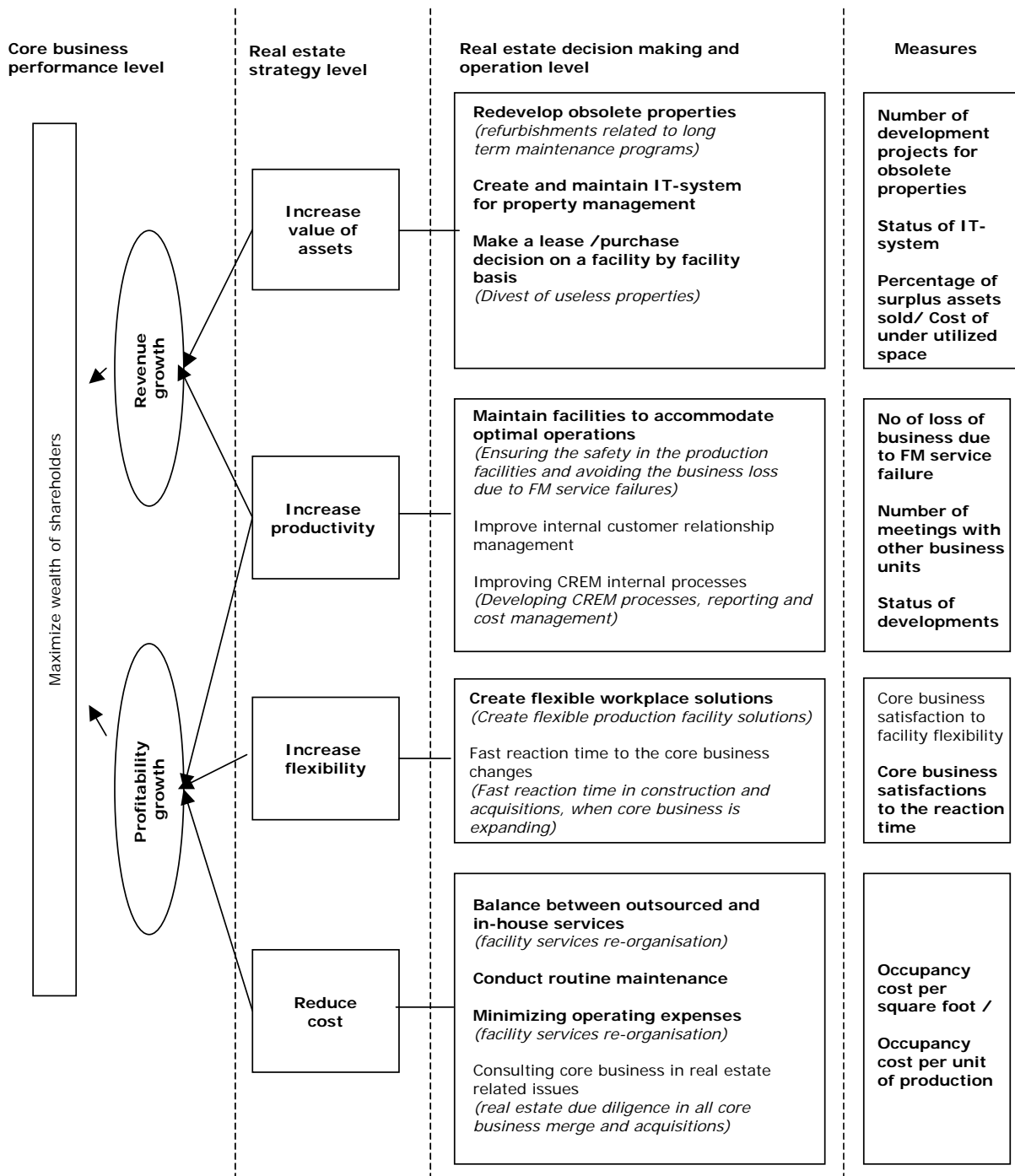


Figure 10. Case unit's model for identifying and measuring the value added by corporate real estate

The bolded text in Figure 10 stands for decisions, aims, and measures, which was included in the original model and the non-bolded text illustrates decisions and actions, which were not in the original model, but were found out to be important in the case unit.

Step 5: Implementing and testing the construct

Since constructive research relies on the pragmatic notion of truth, the implementation phase is an elementary part of the research (Lukka, 2000) Moreover, the phase of trying out the construct is critical, since even a failed implementation test may turn out to be theoretically

interesting (Lukka and Tuomela, 1998). It should be borne in mind that the implementation test has a twofold purpose: a successful implementation means both that the research process has been successful, at least with regard to the most critical factors, and that the construct is technically feasible (Lukka 2000)

The implementation of the case unit's *model for identifying and measuring the value added by corporate real estate* began soon after the model was created. The implementation of the real estate strategies and strategic aims went without surprises. The old Real Estate & Facilities strategic plan of the case unit included the main strategic aims, which they had already used some time, so there were no immediate changes due to clarified CREM strategies.

The main problems in the implementation phase came up with the performance measures related to real estate strategies. Especially the cost related measures, such as the cost of underutilized space, occupancy cost per square foot, and occupancy cost per unit of production were found almost impossible to calculate. The main reason for this is that the different sites (the company has almost 100 different sites) have different kinds of accounting practices for reporting real estate related costs. In some sites all real estate costs are included in "other" costs and there is no way to find out, which costs are real estate related. These incoherent accounting practises were mostly due to the company's way of enlarging its business: through mergers and acquisitions. During the years the company has bought a large amount of companies and all of these companies have had their own accounting practices. These companies have typically been small or medium size steel companies, which have just focused on doing the business and not much attention has been paid to their real estate assets. In spite of these problems related to specific measures, the rest of the model was implemented as planned.

The actual testing, if the implementation was successful, was done by follow-up interviews, three months after the implementation. It was asked in the follow-up interviews whether the case unit was still satisfied with their clarified real estate strategic aims and decisions, whether they have started collecting the data and calculating the measures as it was decided in the implementation phase, and whether the measures led to better decisions in alignment with the strategy.

The strategic aims and the real estate decisions and actions developed with the model were found to be relevant after the implementation as well. Sharpening the aims with the model has helped the case unit to concentrate on the relevant issues from the core business perspective. It has also helped them to pay more attention to the actions, which they thought are not core business relevant, but the model revealed otherwise.

The measures for determining if the CREM unit is achieving its strategic aims were not found as helpful as was believed before conducting the study. Most of the measures are quite stable and the need for following these kinds of measures arises once or twice in the year. For example measures like *number of development projects for obsolete properties*, *status of IT-system* or *status of internal development actions* are quite constant from their nature. Measures like *core business satisfaction of facility flexibility*, *core business satisfaction of the reaction time* and *number of meetings with other business units* were found to be relevant measures and important to have. However, these measures were found to be too much time consuming to collect in

formal manner, like satisfaction surveys. The best way to get data for these measures was found to be just informal discussions with the core business people and the top executives. *No of loss of business due to FM service failure* was found to be the most relevant measure for the case unit, although the measure does not really reveal the success of CREM, rather the failure.

Although the implementation of the measures was found to be a slight failure, the case unit started thinking performance measurement more profoundly. They recognised that at this moment they need not show their relevance to the core business, but in the future there might be a time when they need to have measures and tools, which show the actual benefit of CREM for the core business. Before the research they did not have any measures for internal use either. In the study the model was used for creating these kinds of measures for them, and after the study they will continue using two or three measures identified with the model.

Step 6: Examine the scope of applicability of the construct

In the last two phases of the constructive work, the researcher(s) should become detached from the empirical details and consider wider implications, i.e. external validity. The sixth step involves discussing those aspects of the construct that could be transferable to other organisations (Labro and Tuomela, 2003). In the case of failed implementation, it is possible to consider implementation problems that are also likely to emerge in other organisations (Lukka, 2000).

Kasanen *et. al* (1993) presents tests for market based validation of managerial implications. The *weak market test* is passed when a manager is willing to apply the construct to his or her actual decision-making problem. The *semi-strong market test* is passed if the construct is widely adopted by companies. Passing the *strong market test* requires that the business applying the construct systemically produces better results than those not using it. However, in a constructive case study it is practically impossible to go beyond the weak market test, where the main issue is whether or not the case organisation has adopted the construct (Lukka 2000). Nevertheless, Labro and Tuomela (2003) states that constructive case researchers can and should assess the transferability of their construct, at least to some extent.

It could be seen in this research that the weak market test is passed because the case unit was willing to adopt the model in practice. It was found that the model served the case unit well in clarifying their real estate strategic aims and helped them to concentrate more on the relevant issues from the core business perspective. The model was also used for developing a set of measures, which identifies how well the CREM unit is achieving their aims. Most of these measures were found to be not very useful in practice, but a few of them were found to be important, and they will continue using those.

Based on the research results, the researcher is hopeful in regard to the applicability and the transferability of the original *model for identifying and measuring the value added by corporate real estate* to other organisations. In this study, the model was tested in the industrial business environment. It would be interesting to conduct a similar case study in some more knowledge intensive organisation and study if the measures created with the model work

better. It seems that the original model works best in defining and clarifying the strategic aims and real estate decisions and actions, which helps the organisations to achieve these aims. Based on this research, the original model included the most important strategic ways, through which CREM can create value to the core business. The actual real estate decision might change a bit from organisation to organisation and there may be some decisions, which should be added to the original model as well. In the case study, for example, the real estate decision, such as *Fast reaction time to the core business changes* is not included in the original model, but it is an important and general issue, which could be included. Besides the results of the implantation, this study provides a guideline to other organisations how the original model could be adopted in another business context.

Step 7: Showing the theoretical contributions

According to Lukka (2000) there are two primary ways of contributing to theory in constructive studies. First it is possible that the construct itself is of such a novel model that it introduces an awareness of a completely new means to achieve certain ends. Second, a constructive case study can serve the purpose of developing, illustrating, refining or testing a theory (Keating, 1995).

In this study, the emphasis is mainly on the first type of contribution. The general *model for identifying and measuring the value added by corporate real estate* is a novelty that develops the relationship between corporate strategic management systems and real estate decisions and operations. This leads to better means to identify and prove the contribution of real estate to the firm and the possibilities that exist for adding value. The field has been lacking this kind of model. However, the model still needs to be developed further. In this study, the tested measures were developed for measuring the CREM unit's ability to achieve their aims, but there is also an obvious need to the measures, which demonstrate the benefits of CREM for the core business in economical figures.

5 DISCUSSION AND CONCLUSIONS

5.1 Summary of the results

The purpose of this study was to increase general knowledge on the contribution of the corporate real estate management for the core business of an occupier organisation and to deepen the understanding of issues related to the CREM performance. The main objective of the study was to find out how the contribution and success of the corporate real estate management could be identified and measured. In order to solve the research problem of the study, the following objectives were set up:

- to define the success of the corporate real estate management
- to identify the success factors of the corporate real estate management
- to study how to measure the success of the corporate real estate management.

Based on the definitions of CREM presented in the literature, the success of CREM should be thought as the CREM ability to create added value for the businesses and to contribute to the overall performance of the corporation. By following Hannula and Lönnqvist (2002), success factors are considered as key aspects where targets must be reached in order to succeed in business objectives and strategies. Success factors are the central element in identifying the CREM performance. In here performance is seen as the ability of the measurement object to achieve results. Performance should be understood in this context more widely; in addition to actual achievements, factors affecting the ability to perform should also be considered. Performance measurement for one is a precisely defined method that can be used to describe the performance of a specific success factor (Hannula and Lönnqvist, 2002).

In this study, the success factors of the corporate real estate management were identified by studying previous literature and by interviewing corporate real estate managers and directors in four different countries and different kind of organisations. Based on these research results, the success factors of CREM are formed. These success factors are named as value adding attributes of CREM:

1. Increasing the value of assets,
2. promoting marketing and sales,
3. increasing innovation,
4. increasing employee satisfaction,
5. increasing productivity,
6. increasing flexibility,
7. reducing costs.

These strategies can be used to set objectives and guide real estate decisions, which have been shown in previous research to directly or indirectly affect the value of the organisation. The added value to the organisation can be comprised of two basic approaches: revenue growth and profitability.

In order to demonstrate how CREM actually contributes to the core business of the organisation, there should be performance measures derived from the organisation's strategy and the organisational success factors (Ghalayini and Noble 1996; Keegan *et al.*

1989). A performance measure is a precisely defined method that can be used to describe the performance of a specific success factor (Hannula and Lönnqvist, 2002). Performance measurement system (PMS) is then the set of strategically important performance measures. In this study, the possible measures for each CREM success factors were identified based on the previous literature and interviews.

Based on the interviews with the corporate real estate managers and directors it seems that the strategic performance measurement in the context of CREM is more popular than indicated in previous research. More than a half of the interviewed organisations stated that they have CREM performance measures, which are derived from the organisation's strategy and/or objectives. The main problem with the strategic performance measurement seems to be the lack of comprehensive CREM measures, which could provide the overall picture of the CREM processes and outcomes. This has led to the situation where the organisations are using various CREM measures, each of them indicating one aspect of CREM (e.g. financial, technical, organisational). This, in turn, has not satisfied the strategic level of the organisation, which prefers fewer and broader measures. Even though CREM organisations and researchers are aware of the lack of measures and are continuously finding better solutions, it seems almost impossible to find one or two right CREM measures, which could indicate the CREM performance comprehensively. However, the Table 10 illustrates a list of CREM measures identified based on the research results. These measures could be used for measuring the performance of the success factors. In addition to the strategic performance measurement, it was clear from the interviews that the CREM performance measurement also concentrated on other purposes as well. Probably due to the pure supportive role of CREM in the business environment, organisations are using plenty of measures in CREM, which are not considered as strategic.

In order to test the developed model for identifying and measuring the success of CREM in practice, a constructive case study was conducted. In this constructive case study the model was used for clarifying the real estate strategy of the case organisation and for developing appropriate performance measures to match their strategy. Based on the research results it seems that the original model works best in defining and clarifying the strategic aims and real estate decisions and actions, which helps the organisations to achieve these aims. Based on this research, the original model included the most important strategic channels, through which CREM can create value to the core business. The actual real estate decision might change a bit from organisation to organisation and there might be some decisions, which should be added to the original model as well. Besides the results of the implementation, this study provides a guideline to other organisations for how the original model could be adopted in other business context.

Although the implementation of the measures was not succeeded as well as it was hoped, the case unit found the model useful in defining the core business relevant real estate strategy. The few measures developed with the model were found to be useful as well: the case unit will continue using two or three measures identified with the model. Moreover, this constructive study helped case unit managers to solve their problems in some extend and contributed to theory. The general *model for identifying and measuring the value added by corporate real estate* is a novelty that develops the relationship between corporate strategic management systems and real estate decisions and operations. This leads to better means to

identify and prove the contribution of real estate to the organisation and the possibilities that exist for adding value.

5.2 Contribution of the research

The academic value of this study is gained by presenting novel findings of added value of corporate real estate management and by constructing a theoretical model for identifying and measuring the added value of corporate real estate management. Examining the added value of CREM from the various perspectives and including both the direct and indirect ways to create value in the study has given new, more comprehensive insights of the CREM possibilities to contribute to the core business of an occupier organisation. Furthermore, the study contributes to the field by discussing the strategic performance measurement in the context of CREM. Although several studies related to corporate real estate and facilities management have addressed the topic of managing real estate resources, little research and literature is available on the benefits of the corporate real estate management from the core business of an occupier organisation perspective. The field has been lacking research, which develops theoretical models of the relationship between corporate strategic management systems and real estate decisions and operations. The lack of unifying corporate real estate models means that the contribution of real estate to the organisation and the possibilities that exist for adding value are often not recognized nor properly considered. A similar lack of attention is noticeable from the CREM performance measurement perspective. Studies on CREM measures mainly address the internal CREM measures. Attention to the role of performance measurement in order to obtain the alignment of the corporate real estate management and the core business processes has been missing. Furthermore, providing an all-encompassing definition for performance measurement and operational measures of corporate real estate management in terms of certain critical factors will primarily help to expand the theoretical and empirical literature base in this currently less developed area

The practical implications occurring from the results of this study will enable the development of a methodology to ensure that performance measurements relate to corporate real estate management. By finding the correlation between the performance variables, corporate real estate management administrators can be equipped with an effective tool to determine the value and the level of acceptance of each success factor contributing to the corporate real estate management and to the overall organisational performance. The administration needs to know the status of the organisational controllable so that they can be manipulated to make organisation-wide improvements in corporate real estate performance. The proposed model in turn will offer a reference to assess the benefits of performance measurement. By clarifying the nature of the relationship among variables of real estate performance, it will also be helpful to derive future decisions on investment corporate real estate management activities.

The general *model for identifying and measuring the value added by corporate real estate* is a novel model that develops the relationship between corporate strategic management systems and real estate decisions and operations. This leads to better means to identify and prove the contribution of real estate to the organisation and the possibilities that exist for adding value. However, the model still needs to be developed further. In this study, the tested measures

were developed for measuring the CREM unit's ability to achieve their aims, but there is also an obvious need to measures, which demonstrate the benefits of CREM for the core business in economical figures.

5.3 Evaluation of the research

Anyone moving away from studies based on quantitative data is likely to have to face criticisms that the work is unreliable, invalid and generally unworthy of admission into the magic circle of science (Robson, 1993). Researchers collecting and analysing qualitative data have to take serious note of the potential for bias in these processes. According to Robson (1993) the problem, which is a central strength at the same time, is the reliance on the "human instrument". Lincoln and Cuba (1985) suggest that there are four questions which must be addressed in any systematic enquiry into humans and their ways:

1. *Truth value*. How can one establish confidence in the truth of the findings of a particular enquiry for the persons with which, and the context in which, the enquiry was carried out?
2. *Applicability*. How applicable are these findings to another setting or group of people?
3. *Consistency*. How can one have confidence that the findings would be replicated if the study was repeated with the same (or similar) persons, in the same (or similar) situation?
4. *Neutrality*. How can we be sure that the findings are determined by the respondents and the situation and context, and not by the biases, motivations, interests or perspectives of the enquirer?

The concepts of internal validity, external validity, reliability and objectivity represent the criteria, which have been developed in response to these questions within the experimental and survey traditions (Robson, 1993). Lincoln and Cuba (1985) states that these conventional criteria are inappropriate when conducting research with qualitative data. They propose four alternatives, which appear to reflect the assumptions behind this strategy more faithfully. These are credibility, transferability, dependability and confirmability. In the following paragraphs this study is mirrored towards these five criteria and the evaluation of this study is presented.

Credibility

Here the goal is to demonstrate that the enquiry was carried out in a way, which ensures that the subject of the enquiry was accurately identified and described. Several techniques have been suggested to enhance credibility. This include following (Robson, 1994):

- Prolonged involvement
- persistent observation
- triangulation
- peer debriefing.

Prolonged involvement refers to investment of sufficient time to learn the "culture", test for misinformation, build trust, and generally go through the iterative procedures central to case studies (Robson, 1994). This criterion does not meet with interview phase of the study, but

with the constructive case study phase this could be applied. Also Labro and Tuomela (2003) suggest that sufficient time should be devoted to getting acquainted with the case organisation and letting people at the case organisation familiarize themselves with the research and researcher(s). In this study, the researcher and the personnel of the case organisation already had good relationship before the study began. The mutual trust made it easier for the researcher to obtain a profound understanding of the situation of the case organisation in terms of CREM, strategies and performance measures. Also the aim of the practical problem solving was likely to increase the commitment of the persons interviewed and hence reduce observer-caused distortions.

Persistent observation means that specific situations within the case study need to be observed over a sufficient period in order to identify those aspects of a situation that are most relevant to the issues involved, and the focus of them (Robson, 1993). Persistent observation brings depth to the study. In this study, especially during the constructive case study phase, the researcher was involved with the case organisation over a long period in several periods and observed the issues relating the model testing. Also the observations made by the case unit personnel were mapped and taken into account in the analysis phase.

Triangulation refers to the use of evidence from different sources, of different methods of collecting data and different investigators. Where feasible, these are all triangulation techniques, which enhance credibility. In this study, both in the abductive interview phase and in the constructive case study phase, multiple data collection sources were used. In the interview phase the data was collected besides interviewing, also by analysing organisation documents such as strategy papers, case reports, memos, etc. In addition, at least two multilingual investigators participated in each interview, taking full notes. After each interview, the notes and findings of both of the investigators were combined and compared. In the case study phase multiple data sources were used as well. The data was collected through interviews, workshops and organisational documents as in the interview phase.

Peer debriefing means exposing one's analysis and conclusions to a colleague or other peer on a continuous basis (Robson, 1993). In this study, peer debriefings with other researchers were held throughout the research process. Peer debriefing takes place with a disinterested peer who is outside the scope of the study and who has a general understanding of the nature of the study and with whom it is possible to review perceptions, insights, and analyses. Member checks were used during all phases as well. In addition the structure of this dissertation has provided an opportunity to support the debriefing: this dissertation consists of five individual studies, which were peer-reviewed and evaluated individually when published in academic forums. The study was also reshaped by the valuable feedback from the articles revised.

If the results do not seem credible, there is no point in asking whether they are applicable to the situation in which they are found. Hence, credibility is a prerequisite for testing transferability (Guba and Lincoln 1981). Transferability is the construct corresponding to external validity or generalisability in conventional quantitative research (Robson, 1993). When a sampling methodology is not used, it is clearly inappropriate to seek to make the same kind of statistical generalisation to a population, which is a fundamental part of statistical inference. Coffey and Atkinson (1996) find that the very process of abductive

reasoning leads toward concepts and models that are applicable across a wider range of contexts. Thus, by using abductive logic, i.e. by the constant testing of concepts with empirical findings and creating new concepts that better fit the reality, the transferability of the results of this study is enhanced.

Lincoln and Cuba (1985) state that it is not the task to provide an index of transferability; it is the researcher's responsibility to provide a data base that makes transferability judgments possible on the part of potential appliers. In their view this is done by providing a "thick description". Broadly speaking this is a description, which specifies everything that a reader may need to know to understand the findings, which appears suspiciously circular as definition. The transferability of the study was supported by reporting both the research methodology and the results on a detailed level both in the appended papers and this summary.

In addition to thick description, Marshalla and Rossman (1989) stress the need for a full specification of the theoretical framework on which the study is based. This then helps those designing studies or making policy within that framework to determine whether or not the research described can be transferred to other settings. The reader can also see how the research ties into a body of theory. Chapter 2 in this summary and also the individual research papers provide full theoretical framework on which this study is based.

Dependability is analogous to reliability. Just as reliability is necessary, though not sufficient condition for validity, so a study that is valid needs to be reliable, then dependability is necessary, though not sufficient for creditability (Robson, 1993). Triangulation, discussed above in connection with credibility, could be argued as being more obviously a means of assessing dependability. In addition, Cuba (1981) suggest enquiry audit as the means of assessing dependability. The academic enquiry audit has two basic tasks: to examine processes used and to examine the product. If the processes followed are clear, systematic, well documented, providing safeguards against bias, the dependability test is passed. As reported with the transferability, the dependability of this research is supported by reporting the research process, the research methodology and the results in a clear and detailed manner.

Confirmability is the corresponding concept to objectivity (Robson, 1993). Halpern (1983) has provided a detailed operationalisation of the enquiry audit concept. This includes techniques for following the "audit trail" and an algorithm for the audit process. In order to conduct an audit, various categories of information will be required:

- a) Raw data (field notes, documents, tapes, etc.),
- b) processed data and analysis products (write-ups, summaries),
- c) data reconstruction and synthesis products (codes, patterns, matrices, etc. and final report),
- d) process notes (procedures, designs, strategies),
- e) material relating to intentions and dispositions (original proposal, personal notes, intentions, expectations),
- f) instrument development information (pilot forms, schedules, observation formats etc.).

With regard to this study, the audit trail includes the raw data (audiotapes, transcripts, and researcher notes from the interviews and workshops), processed data and analysis products (models, categories emerged from the data) as well as coding and memos from interviews. Furthermore, the confirmability of the present study rests on the credibility of the empirical data and the reporting. Regarding the reporting, the researcher's pre-understanding of the research area is discussed, the research approach is described, and the background and justification for chosen methods.

5.4 Future research

This research has raised many avenues for future research. The interviews conducted for this research reinforce how much both the corporate real estate and general managers still view real estate as a cost of production that must be minimized, not as a strategic resource. While the majority of those who contacted still emphasize reducing real estate costs, a substantial minority recognize the opportunity of using real estate resources to increase productivity, support core business strategies, and increase employee satisfaction. The development of the model for identifying and measuring the added value of CREM is the first step in the path providing corporate managers with the tools they need to understand and identify the overall contribution of CREM to the core business of an occupier organisation.

Based on the research results, the researcher is hopeful in regard to the applicability and the transferability of the original *model for identifying and measuring the value added by corporate real estate* to other organisations. The constructive case study was quite challenging for the model perspective, because the original model was developed mostly from the office based businesses perspective, not so much from the industrial businesses perspective. It would be interesting to conduct a similar case study in more knowledge intensive organisations, and find out if the measures created with the model work better. It seems that the original model works best in defining and clarifying the strategic aims and real estate decisions and actions, which helps the organisations to achieve these aims. Based on this research, the original model included the most important strategic channels, through which CREM can create value to the core business. The actual real estate decision might change a bit from organisation to organisation and there might be some decisions, which should be added to the original model as well.

Thus far it is found that only a limited number of performance measures are being used by CREM. Those measures being used are not necessarily the best measures to evaluate whether real estate strategies are being successfully implemented and that they are not all reliable, valid, practical, and relevant. This study is finding that the measures the organisations use are often either those that they have the data to calculate, those industry commonly benchmarks or those that a higher authority asks for. They are not tied to specific strategies and operating decisions that drive the CREM operations. Study is also finding that the set of measures the organisations are using is incomplete. The success of many real estate decisions in contributing to the core value of the organisation is going unmeasured. Thus, corporate real estate executives using such measures will continue to have difficulty in demonstrating how they add value to the organisation. The research should be continued by evaluating the full range of possible performance measures and suggesting how they might

be integrated into a complete performance measurement system. This study should be extended with the identification and refinement of specific performance measures that can be used to quantify these additional ways value is added to the organisation by corporate real estate via the strategic model presented in this paper. Leading and lagging performance indicators now being used require testing for reliability and validity. New indicators may be needed to better quantify the direct and indirect effects the real estate has on corporate performance. Then a set of preferred measures can be offered, from which the organisations choose depending on their specific business strategy. This will identify what data the organisations need to collect to analyse the contribution of the real estate management to the organisation and help corporate real estate management gain better recognition and reward for the value the real estate adds to the organisation.

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